

**FOREIGN
BROADCAST
INFORMATION
SERVICE**

JPRS Report

DISTRIBUTION STATEMENT A

Approved for public release;
Distribution Unlimited

Soviet Union

Military Affairs

19980626 130

REPRODUCED BY
U.S. DEPARTMENT OF COMMERCE
NATIONAL TECHNICAL
INFORMATION SERVICE
SPRINGFIELD, VA 22161

7 JANUARY 1988

Soviet books and journal articles displaying a copyright notice are reproduced and sold by NTIS with permission of the copyright agency of the Soviet Union. Permission for further reproduction must be obtained from copyright owner.

SOVIET UNION MILITARY AFFAIRS

CONTENTS

MILITARY-POLITICAL ISSUES

- Career of Kalashnikov Highlights Intellectual Side of Military Life
(M. Kalashnikov; KRASNAYA ZVEZDA, 2 Aug 87) 1
- Deferment of Draft Based on Importance of Chosen Field Proposed
(I. Tarapov, V. Kibets; IZVESTIYA, 4 Aug 87) 5

MILITARY SCIENCE

- Maj Gen Avn Pokhodenko on Command, Control in Battle
(V. Pokhodenko; KRASNAYA ZVEZDA, 14 Jul 87) 7

ARMED FORCES

- Pre-Draft Training in Leningrad Sharply Criticized
(O. Nikonov; KRASNAYA ZVEZDA, 1 Aug 87) 11
- Exercise Notification for August Maneuvers in Ukraine
(KRASNAYA ZVEZDA, 11 Aug 87) 17
- Col Gen Avn Gorelov Retired for 'Obsolete Methods'
(I. Zheleznyakov; KRASNAYA ZVEZDA, 7 Aug 87) 18
- Problem of Recruiting Minorities to Officer Corps
(N.I. Popov; SOVET TURKMENISTANY, 13 Jun 87) 19
- Rayon Military Commissariates Criticized
(A. Alaskarov; KOMMUNIST, 2 Jun 87) 19
- Briefs
Editors Apologize for Error 20

GROUND FORCES

Western Tank Development Reviewed (O. Ivanov; TEKHNIIYA I VOORUZHENIYE, No 9, Sep 87)	21
T-72 Tank: Special Features of Technical Servicing (V. Moskalev; TEKHNIIKA I VOORUZHENIYE, No 9, Sep 87)	27

AIR, AIR DEFENSE FORCES

Pilots Sharply Criticized for Lack of Discipline, Knowledge (KRASNAYA ZVEZDA, 11 Jul 87)	32
Sam Battery Trains for Multiple Cruise Missile Attack (A. Pirmagomedov; KRASNAYA ZVEZDA, 11 Jul 87)	35
Planning for Air Combat in GSFG (V. Korchagin; KRASNAYA ZVEZDA, 29 Jul 87)	37
Reasons for Lower Company Combat Readiness Explored (A. Ladin; KRASNAYA ZVEZDA, 5 Aug 87)	40
Aluminum Shavings Cause Hydraulic Failure in MI-8 (Ye. Plotnikov; KRASNAYA ZVEZDA, 11 Aug 87)	43
Yefimov, Lobov Attend Ceremonies for Air Fleet Day (KRASNAYA ZVEZDA, 15 Aug 87)	45

NAVAL FORCES

Alpatov on Training Stations and Between-Cruise Training (D. Alpatov; TEKHNIIKA I VOORUZHENIYE, No 7, Jul 87)	46
--	----

REAR SERVICES, DEFENSE INDUSTRY

Interview With Chief Engineer Maj Gen S. Kostromin (S. Kostromin Interview; KRASNAYA ZVEZDA, 2 Aug 87)	51
Defense Ministry, Glavpu on Construction Plan Fulfillment (KRASNAYA ZVEZDA, 8 Aug 87)	54
Changes in Defense Industrial Ministries (VEDOMOSTI VERKHOVNOGO SOVETA SOYUZA SOVETSKIKH SOTSIALISTICHESKIKH RESPUBLIK, No 20, 22 Jul 87)	57
Minister Afanasyev Retires	57
New Ministry Formed	57
Velichko To Head New Ministry	58

FOREIGN MILITARY AFFAIRS

Swedish Press Coverage of Supposed Soviet Sub Threat Noted (N. Bukolov; KRASNAYA ZVEZDA, 10 Jul 87)	59
Examination of Design Features of U.S. Submarines (S. Mikhaylov; VOYENNYE ZNANIYA, No 2, Feb 86)	60
KRASNAYA ZVEZDA Reviews Western Development of RPV's (Yu. Boyko; KRASNAYA ZVEZDA, 29 Jul 87)	65
U.S. Naval Presence in Persian Gulf Said To Increase Tension (V. Vinogradov; KRASNAYA ZVEZDA, 9 Jul 87)	69
U.S. Arms Aid to Afghanis Linked to Arms Aid to Pakistan (V. Vinogradov; KRASNAYA ZVEZDA, 16 Jul 87)	71
IZVESTIYA Notes U.S. Plans To Escort Kuwaiti Tankers (IZVESTIYA, 17 Jul 87)	73

/9987

MILITARY-POLITICAL ISSUES

CAREER OF KALASHNIKOV HIGHLIGHTS INTELLECTUAL SIDE OF MILITARY LIFE

18010226b Moscow KRASNAYA ZVEZDA in Russian 2 Aug 87 p 1

[Letter from reader and response by M. Kalashnikov, Doctor of Technical Sciences, twice Hero of Socialist Labor, holder of the Lenin Prize and the State Prize of the USSR, deputy in the USSR Supreme Soviet: "It Is Never Too Late to Be Daring"; first paragraph is KRASNAYA ZVEZDA introduction]

[Text] The machine-pistol designed by M.T. Kalashnikov in 1942 was the first of the small arms he designed. Academician A.A. Blagonravov, highly prominent specialist in the field of small arms, became interested in the new system. He devoted attention to the fledgling designer and recommended that the latter study persistently and continue his design work. The subsequent success achieved by Kalashnikov in the development of the assault rifle (AK) placed him among the leading designers in the Soviet Union. The development out of the assault rifle of various models of standardized small arms for hunting and for the tank troops, which entered the armament of the Soviet Army, is further testament to M.T. Kalashnikov's talent and brilliant, creative design innovations.

Respected editors: Once, when I was talking with a young soldier inducted from school, he said that the military service would destroy any interest he had in continuing his schooling at an institute. Unfortunately, this is not an isolated opinion. Some recent students have entered the military formation with the conviction that "their creative abilities would atrophy" in the army. Personally, I cannot understand this attitude. I know of many famous people for whom the military service was their launching pad into science and technology. They include small-arms designer M.T. Kalashnikov. I would like to learn Mikhail Timofeyevich's thoughts about the career he chose and about how the military service helped him to develop his talent. -- Senior Lieutenant A. Slinkin, commander of a motorized rifle company

The telephone rang the day the KRASNAYA ZVEZDA correspondent was in my home and showed me the letter from Senior Lieutenant A. Slinkin. I picked up the receiver and heard a child's voice. Seventh-grader Pasha Chernov excitedly told me that he had come up with a new design for an assault rifle butt and wanted very much to discuss it. Had I refused I would have with a single word dampened his enthusiasm for exploration.

The schoolboy timidly entered the apartment. He carried a small box with a miniature mock-up of an assault rifle and separately, the butt. It was all made

of plasticene. Pasha and I sat down at a table, heads together, and began to analyze the merits and the deficiencies of his design. I could feel that the boy was drawn to design work. He was intensely involved in the realization of technical concepts--still naive concepts, to be sure--and understood the parts and the operating principles of small arms fairly well for his age.

Where did this come from? What gave him his interest in technical things? I learned that his father had brought him an initial military training aid, an unusual book for school children in the lower grades. The boy had exhibited an interest in the drawings of small arms and their operating principles. He took his curiosity to the school's military instructor. The latter was not stingy with his time. He helped the schoolboy not yet old enough for initial military training to learn the basics and supported his interest. He advised the boy to talk with some specialist....

I cannot say that this boy will become a designer. I would only stress something I consider to be important. The adolescent was not suffering from a lack of something to do, not concerned with the idle killing of time in the yard, but was impatient to do something of his own, was suffering from a shortage of time.

Getting back to the letter from Senior Lieutenant A. Slinkin, I can say that those young soldiers drafted out of school, who have already decided for themselves that the army will destroy their desire to continue studying at a VUZ, that it will cause their creative abilities to atrophy, have simply never been deeply involved. They have obviously not had a military instructor like Pasha Chernov's, never had that kind of technical activity group, and finally, never had that kind of school. With respect to their attitude, I suggest that the motivation was set by the superficial and undeliberated opinions to be found on the pages of certain press organs.

The nation has entrusted to its armed defenders the most advanced combat equipment and complex automated systems. Is it not interesting to get to know and make maximum use of them, to be daring in mastering them, learning new things and persistently perfecting one's skill in the process? The main thing, however, is that the combat readiness of the army and navy and our nation's security demand this.

When one hears a person in the military say that the army is just marching and drill, one cannot help thinking what a pity it is that those people did not complete the job who were supposed to evoke a sense of joy in the soldier as he learned to operate the equipment, in sessions at the training center, in the classroom, in exercises and at the [equipment] pool.

Enthusiasm and then what? I believe it must be a goal one sets for himself. I would even say a desire to accomplish the super-task. The army, which I have gratefully called my academy all of my life, constantly developed in me a desire to accomplish super-tasks.

How did it do this? First of all, with its climate of creativity. From my first days in the service I lived in a unique situation of contests. Prior to the war I was a mechanic-driver on a tank. During a competition of unit rationalizers, for example, I succeeded in producing and testing an inertia meter for

registering the actual number of rounds fired from the gun, and I received one of the first acknowledgements from the specialists: "The meter is simple to construct and operates reliably." After that I took part in a district competition in which I developed an instrument for registering the operation of a tank engine in gear or idling. At the suggestion of then Army General G.K. Zhukov I prepared two experimental models of the device. They were sent for testing to one of the units near Moscow. Following the testing the instrument was recommended for regular production.

I am not writing about this in order to underscore my own merits once more. I have something else in mind: to show that the modern army with its extremely complex technical (and scientific too!) equipment unvaryingly intensifies and provides the opportunity to improve the creative abilities of the man in uniform, whatever his rank, but with one absolute condition: that he set himself a goal and make a statement about himself with real work, or, as they say today, with a real end result.

I am very certain that the specialist or designer who just happened to have received a VUZ degree but is not accustomed to working on a daily basis to improve himself and acquire knowledge and skills, not accustomed to organized thinking, to self-discipline in the creative work, to selflessness on the job, not accustomed to all that which the military service provides, cannot be daring and is incapable of making a qualitative leap. The names of small-arms designers V.A. Degtyarov, G.S. Shpagin, S.G. Simonov and A.I. Sudayev are well known not just in the army and navy but throughout the nation. I honed and polished my own design thinking in creative competition with them. They had periods of failure, doubts and disappointments, just as I did. However, each of us had an indestructible urge to stick with the resolution of important design problems and to participate in the competition of ideas to the end. When we set about a job, we saw not just its beginning. We could already picture where it would ultimately lead. And believe me, when you are seeking it is essential to see the actual end goal, to move persistently toward it and to constantly have a sense of responsibility for the achievement of the concrete end result. If one of us did win a creative competition (and only the very best model was accepted into the forces, following long and comprehensive testing at the range), this made us want to keep on fighting, but taking our next design "undertaking" one or even several levels higher.

I particularly want to say something about a certain person, about a designer whose life and what he has done I consider to be a feat. After being with him you had the impression that you had received a new charge of energy and creativity. The sport pistol created by this designer was acknowledged in our nation and abroad to be one of the best models of a sport weapon. It was named after him--the Margolin pistol. I would stress the fact that Mikhail Vladimirovich Margolin was blind when he went about designing it. He lost his sight back before the war, from a serious wound received while eliminating one of the bandit gangs. The designer frequently said that if not for his toughening-up in the military it would be difficult to say what would have become of him. The military schooling helped the former platoon commander to become a fighter also in life and a creator in technology. Blinded, he worked during the entire Great Patriotic War in arsenals, at ranges and at defense plants, making his contribution to the improvement of weapons. After the Victory he designed the "peacetime" pistol which made the creator's name famous.

I would mention one more name for those who believe that serving in the military causes the individual's creative abilities to atrophy. Hero of the Soviet Union A.P. Aleksandrov, pilot and cosmonaut, went into near-earth orbit as part of the Soviet-Syrian crew. I want the young people to carefully read his biography. Since completing his service in the ranks of the Soviet Army, he has worked in a design office, graduated from night school at a technical VUZ and participated in the development of control systems for space vehicles.

Today, I am convinced, we need to look beyond formulas, beyond a single model, and certainly beyond a single, small improvement. It is important for each of our engineering and design solutions to solidly and significantly combine science and production, to give real and substantial acceleration to the economy and to contribute to the further strengthening of the nation's defense capability.

Ours is a time of concrete, practical action, and we need to be daring. To be daring profoundly and on a large scale. The army and navy open up enormous scope for this kind of daring.

11499

MILITARY-POLITICAL ISSUES

DEFERMENT OF DRAFT BASED ON IMPORTANCE OF CHOSEN FIELD PROPOSED

18010226a Moscow IZVESTIYA in Russian 4 Aug 87 p 3

[Article by Rector I. Tarapov and V. Kibets, secretary of the party committee at the Kharkov State University imeni A.M. Gorkiy, under the rubric "The Reader Poses a Question": "The Student Leaves for the Army..."; first paragraph is IZVESTIYA introduction]

[Text] The authors of this letter believe that the induction system is flawed.

Military-patriotic indoctrination is one of the most important areas of ideological work at the VUZ. We have our own traditions at the university. In May hundreds of students will be sent to tour sites of combat glory of fathers and grandfathers. The VUZ is among the leaders in the republic with respect to the results of these tours. Meetings of students and veterans, militarized physical culture celebrations, department and school activities which develop a sense of patriotism, formal send-offs of students into the army, correspondence between the departments and the students and, later, receptions for them and assistance with their studies are all a part of university life. What is it that does not suit us? The existing system for drafting students for active duty. We feel that it is not flexible enough. It frequently does irreparable damage to the specialist's training.

We feel that all of the problems start with the induction plan. One has the impression that the military commissariats compile it hapazardly, that whomever they can get included in the group to fill the quota--no matter what specialties are affected--those people go into the service. There is a call-up after the winter and the summer exam sessions. For almost a month the students are busy with induction matters. They do not attend lectures and stop studying. And this is just before the exam session. For example, 41 percent of the students drafted from the geology and geography department at our university in 1983 received "twos" on their exams. The figure reached 72 percent the following year.... Almost all of the young people returned to the department when they left the army. Upon returning, however, they had to rectify these grades, and despite the assistance they received--and frankly, a certain degree of leniency--a quarter of the students returning to the department did not make it.

Losses from the mechanics and mathematics department amounted to 27 percent. These are the ones who were dropped after serving in the army or were transferred to other departments. In addition, only 18 percent of those demobilized to repeat the

course were retained, and 7 percent of the students did not return to the department at all. The success rate drops markedly following demobilization for students in the physics, radiophysics and physicotchnical departments.

The situation is different in the natural science departments. Those who were good students prior to being inducted are still "in shape" when they return from the army. The average grade for good students in the biology department only dropped from 4.5 to 4.4. Induction into the army has almost no effect on the learning of students in the economics, history and philology departments.

There is nothing supernatural about these figures. We are confident that the situation is the same at other VUZs in the nation. The induction process has developed into an unvarying pattern. Those specialties which are important for material production suffer most from its inflexibility. It is difficult to expect the demobilized student feverishly trying to make up what he has lost to participate in scientific and creative work. The situation is made even worse by the fact that training plans have been changed during the 2 years spent in the army.

Another problem is the fact that the demobilized students undergo the same amount of military training as the others. Why should the demobilized students study the "Course for the Young Soldier" when they know it like the palm of their hand? Would it not be better to give them extra time to make up what they have missed?

The existing system for drafting students and the program and the organization of their military training therefore need to be seriously studied and restructured. We feel that students in the military divisions at the VUZs should be drafted after they have completed their studies. At the end of their service term they should take the exam and receive an officer's rank.

It is also important to take the specialty into account for drafting graduates into the service. This will make it possible to reduce the period of time spent studying military disciplines at the VUZ, and the training camp assemblies in the forces will not be necessary. This will unquestionably save time and means, and the Armed Forces will receive educated and morally mature people.

A differentiated procedure--depending upon the field of training--for drafting students into the army could be established as an alternative. The system we are proposing could be established for students in physics and mathematics and in specialties of prime importance to the main production sectors of the national economy. The present system could be retained for the rest for now: induction into the army following the first years of study, but with a number of changes which would make it possible to eliminate the disruption of the training process and would do away with a number of the absurdities pertaining to the military training programs.

11499

MAJ GEN AVN POKHODENKO ON COMMAND, CONTROL IN BATTLE

Moscow KRSNAYA ZVEZDA in Russian 14 Jul 87 p 2

[Article by Maj Gen Avn V. Pokhodenko, chief of staff of air forces, Group of Soviet Forces in Germany: "The Squadron Did Not Reach the Target"]

[Text] The targets--the firing position of enemy" tactical missiles--were easily visible from the range observation post. The hands of the watch slowly approached the assigned time for launching a strike on the targets by groups of fighter bombers whose actions on the range were directed by Guards Lieutenant Colonel V. Zuzlov.

The airplanes appeared above the target on time. The fighter-bombers attacked it from different directions and different altitudes, dived in pairs and flights, accomplished intricate counter-antiaircraft maneuvers, and took off at lowest possible altitudes.

The raid lasted several minutes, the time for launching the strike was minimum, and the established standard was considerably surpassed. Here, the missiles on the launchers were destroyed by direct hits one after the other. Only smoking craters remained at the places where dugouts, trenches, and improved firing points were located.

Despite the swiftness and fast moving nature of the strike, the actions of each pilot were strictly subordinated to a well-thought-out concept and plan and the instructions of the flight operations officer. The groups led by Guards Lieutenant Colonel V. Marchenko and Guards Major S. Kuzmin were under the most difficult conditions. The mission was assigned to them in the air and the targets were determined directly on approaching the range. And nevertheless, all pilots coped with the mission excellently. Here great credit belongs to Guards Lieutenant Colonel V. Zuzlov who ensured the clear direction of the crews.

The clearness of actions of the flight operations officer on the range and of the aerial fighters is the result of the painstaking labor in the course of daily combat training and a well organized training process. In this unit, in their work the regimental commander, subunit commanders, political officers, and the party organizations of the subunits are constantly directed in their work toward the final result--toward ensuring the high combat readiness of the regiment and raising the quality of the training of each pilot.

On this same day, another regiment was checked on this same range. Its actions were directed by Major G. Yakovlev. This time the picture was different. The impression was created that the flight operations officer and the crews did not understand one another. A group leader, Major A. Solovyev, committed an error in approaching the target, did not maintain the calculated parameters of a maneuver, delayed it because of poor knowledge of the target situation, and then requested of the flight operations officer permission for a second approach. And not receiving an answer, he independently made the decision to execute a second attack. Here, he did not consider the situation in the sky above the range and the general combat formation, which created difficulties in controlling the subunits in the air.

Another pair of this group could not find the assigned target and dropped its bombs on another. The flight operations officer was required to but was unable to prevent the error and did not ensure clear control of the crews. Nor was the command post equal to the occasion. It could not render assistance to the leader and did not provide reliable direction of the group's actions.

In this unit the staff and its chief devote little attention to the training of the combat control officers and the command post sections. Often flights on the ranges are directed by second, third, and even fourth persons but not by the commanders themselves. This has a negative effect on the aerial training of the pilots and on the quality of their control in the air since the commanders lose their skills in the direction of flights and the combat actions of subordinates.

At a tactical flying exercise in which the squadron of Lieutenant Colonel V. Osin took part, everything went well while events developed within the framework of a plan which was worked out earlier, was well thought out, and "flight tested." The groups of airplanes launched strikes against the assigned targets and operated clearly and confidently. The squadron worked excellently, destroying all targets. But it received a grade... "unsatisfactory" even without measuring the deviations in bombing. The fact is that the pilots attacked another's target although they were not at fault in this. Already after the takeoff of all groups a special situation arrived at the regimental command post: to redirect the squadron to another area where a tank subunit of the provisional enemy had unexpectedly broken through. The regimental commander was unable to competently distribute his attention to all groups which were in the air, did not understand the tactical situation which had become more complex, and delayed in making his decision.

The flight personnel of the regiment of which this squadron is a part are well trained as a whole, and the crews and subunits mastered many versions in combat employment, and they are ready to conduct combat operations under various conditions and without simplifications. The regimental commander also devoted much strength and energy to the training of subordinates and he organized the combat training of the aviators well. But in so doing he omitted his own training and, at the important moment, he proved unready to control the subunits continuously, firmly, and flexibly and lost precious seconds. Despite the sufficiently high training of the flying and technical engineering personnel, the regiment received an overall grade of only "satisfactory."

When you observe the clear, coordinated actions of the subunits and units during checks, the impression of easiness is automatically created, I would even say of grace in the work of both the leaders and the subordinates. They are quick on the uptake with each other, their radio traffic is brief and laconic, and no excess words are required. From the nature of the radio traffic, for example, on the range one can draw a conclusion about the unit's level of organization. If there are many conversations and refinements on the air and if the commands from the ground are verbose and wordy and the tone of the radio conversations is elevated, it is difficult to count on irreproachability of actions and there may be breakdowns and errors.

Firmness and reliability in control of the battle are attained by painstaking and persistent daily labor and the good organization of the entire training process in the unit. The slightest omissions and incomplete work which are left without attention and shortcomings which are not eliminated without fail become apparent during an exercise, and this also means in actual battle.

I recall how one pilot did not cope with his mission on the range. They began to look into the reasons and analyze his training during the winter training period. It was learned that even earlier he had low grades for combat employment, but the commanders did not learn the reasons for errors in time, did not think about how to correct them, and began to undertake measures only from the results of the exercise. With such an attitude toward the matter even the most perfected direction of the battle would be doomed to low effectiveness.

One often has the occasion to encounter poor knowledge of the equipment and tactics of the probable enemy by individual pilots. Such a situation is impermissible, and the staffs are primarily responsible for the eradication of this shortcoming.

In the course of one control exercise a pair of fighters was to intercept a single "enemy" airplane but it lost the battle even prior to the start of the attack since it was placed in a situation where the "violator" could employ guided missiles first. The well trained pilots actually could not accomplish the mission through the fault of the chief of the command post, Captain V. Zasko.

We also still encounter shallow knowledge of our own equipment. In some units, little attention is devoted to the renewal and deepening of the knowledge of aerodynamics, and frequently pilots use their old store of knowledge obtained back in the military school or military academy. But life moves forward, equipment is improved, and the aerial fighter does not have the right to lag behind technical progress. Really, can one effectively use the weapons of a fighter not knowing firmly and specifically how the aircraft will behave in various modes, let us say, when it goes into a roll at maximum angles of attack? This should also be known by one who controls the actions of the pilot from the command post. Otherwise, a threat to flight safety may arise. It is impermissible when pilots who are called upon to coordinate with ground forces subunits do not know, for example, the rates of advance of a tank or motorized rifle battalion on the march and in the attack and orient themselves poorly in questions of the tactics of combined-arms combat.

Unfortunately, the shortcomings which have been listed are not so rare; therefore, it is necessary to speak of them. Life requires the allotting of a special place to the solution of problems connected with the improvement of the organization of combat training and improvement of the control of units and subunits in battle.

6367

CSO: 18010219

PRE-DRAFT TRAINING IN LENINGRAD SHARPLY CRITICIZED

18010229a Moscow KRASNAYA ZVEZDA in Russian 1 Aug 87 second edition p 3

[Article by Lt Col O. Nikonov: "Too Many Cooks Spoil the Broth....: How the Youth Are Prepared for Military Service in Leningrad, and by Whom"]

[Text] I went to see Major General I. Pavlov, military commissar for Leningrad, because of a figure I had heard from the speaker's platform at a government conference. Summing up the findings of a commission of experts which had studied the state of initial military training, the speaker said literally the following: "There are hundreds of pre-draft youth with a police record in Leningrad."

You will agree that this is an alarming figure. Primarily from the standpoint of the future military service. One can assume that even with optimistic hopes for the reeducation of a certain portion of these young people, a significant number of them will enter the army and navy with certain deviations from normal moral principles and are therefore potential violators of military discipline. The figure also demonstrates that there are serious gaps in the indoctrination of a certain portion of the city's youth, specifically the military-patriotic indoctrination of the pre-draft group.

"Yes, that is true," the military commissar agreed. "The specificity and precisely defined special aims have begun to be lost in the indoctrination of the youth for some time now. The indoctrination is sometimes carried out in isolation from the practical reality, from real life. The stress is on edification even in the military-patriotic work. What the military service and the specific specialty demand of the young person and how well he is actually prepared for it spiritually and physically frequently take a back seat.

"Or consider this. The training and labor collectives, even certain families, are more and more frequently cultivating the concept that the army is some kind of mechanism designed to correct their own errors in the indoctrination. Others, without even attempting to take a hand in the matter, without having done anything to develop clear-cut civic and moral principles in a youth, appeal with pleading eyes to the military commissariat: 'Call him into the army early. I can't handle him.'"

"The comrades should be reminded of that place in the Constitution of the USSR which speaks of military service," Colonel A. Lysenko, chief of the political section, entered into the conversation, "calling it an honored duty. Honored!

We frequently recall this only at anniversaries and meetings, however. In our routine work we frequently limit even the resolution of pressing problems upon which the preparation of the youth for the service depends to something secondary, something which could be done in second or third place, or not at all...."

I knew very well what Aleksey Petrovich had in mind. Just prior to that workers in the city military commissariat had completed a study of the state of the training facilities for NVP [initial military training] in Leningrad and arrived at the disquieting conclusion that, despite decisions adopted by the Leningrad Gorispolkom, the matter is proceeding slowly. There were no initial military training complexes in the city's five largest rayons, and there are still none. They exist at only 43 of 526 educational institutions. There are only five firing ranges at 42 educational institutions in Vyborgskiy Rayon, and only one at 18 educational institutions in Kuybyshevskiy Rayon. New firing ranges were to begin operating in Kolpinskiy, Zhdanovskiy and Leninskiy rayons last year, but the decisions of the ispolkoms did not proceed beyond the point of being written down. Other planned training facilities were also not built.

Large industrial enterprises are the sponsors of these and many other projects not being built. Their leaders are obviously disturbed by deficiencies in the indoctrination of the youth and cannot fail to understand how difficult it is to take a youth off the streets, to involve him in useful activities, when there is a shortage of sports centers, including centers for defense sports. And every firing range, every sport facility and every initial military training complex is just such a center. The understanding is still not taking the form of specific action, however.

The amazing thing is that certain leaders are in no way troubled by the fact that they have "botched" the construction of a firing range or a sports facility and failed to carry out a decision of the ispolkom. They all use plan fulfillment or production output as an excuse. There is the plan and there is the output, and the rest can be worked out. Is this not what is nourishing the roots of the widespread principle: let anyone but me indoctrinate the youth and prepare them to serve in the army.

In the final inspection last year almost half of the draftees failed to meet the GTO [ready for work and defense] standards. And no one was found to blame. The poor physical conditioning of the youth is turning into a serious problem, however. In addition to everything else, after all, it is directly linked to the military fitness of the youth. Also last year, the city's military commissariats were forced to remove many young people from the register for reasons of health. The public health agencies are also to blame, of course. The strange thing is that no specific individuals were found to blame for the situation.

It has been pointed out at many representative conferences, including the district military council, that the medical service for adolescents is not yet effective enough in many of Leningrad's rayons. Many promising decisions have been adopted. The task can hardly be accomplished by merely increasing the number of clinics and doctors sent out to examine the youth for "chronic muscular dystrophy," however. We must improve the sports therapy work performed with the youth. This

work is still little effective. It does not have an applied military orientation. Furthermore, it is not conducted on a truly mass scale. Is it surprising that the police statistics are growing. More than 2,500 pre-draft youth were arrested in an intoxicated state last year. They also included youth who use drugs and ones who like to sniff gasoline to get high. Sooner or later every vacuum is filled. But with what?

At the same time, it is believed at the Leningrad city committee of the Komsomol that more and more kids are engaging in sports "exclusively for themselves" and regularly "pumping" their muscles. Not in order to acquire the qualities needed for the service but primarily to stand out, to be the boss in their crowd, to establish the "law" of the fist.

"Most of those with a police record," said I. Pokhorukov, head of the sports and mass defense work section of the Komsomol city committee, "are not engaging in organized sports in the true sense of the term. They join together into informal groups and associations based on the egotistical-antisocial principle that 'anything goes.' And for them this is in fact in great part true. Not bearing any sort of responsibility for their own personal preparation for the military service, for example. And our public morality suffers: So what? So the young man cannot run, fire a weapon or swim. They will teach him how in the army...."

Igor's opinion is perhaps extreme in some ways, but I believe that it is essentially correct. There was a time when it was considered to be the most prestigious, to use the modern language, not to wear stylish clothes but to have an athletic build and strong health, and the criterion for determining the youth's social worth among his peers was his preparedness to serve in the army. There were songs about this, and shows and movies extolled precisely this sort of contemporary. Today, however, the attitude of young people toward "heavy metal" is just about the main evaluational criterion. And one cannot help being disturbed by this replacement of the most important with the secondary.

The system of military-patriotic indoctrination of the youth and their preparation for military service was formed in Leningrad a long time ago. It developed over the years and at one time produced good results. Emissaries from the city on the Neva distinguished themselves markedly in the units and subunits. The mail received by the city and rayon military commissariats, the local press, radio and television attested to this. In time the contents of the mail changed markedly. It began to contain less praise of and more complaints about the Leningraders. The commanders of the Leningraders mainly say that they are highly conceited and opinionated, that they lack self-discipline, have poor physical conditioning.... Generally speaking, these are a part of the picture of the soldier drafted from Leningrad.

I expect that this will evoke some disgruntled outcries to the effect that the author is laying it on too thick. I agree that an absolute majority of the Leningraders hold high the honor of their native city. But let us not close our eyes to the unfortunate fact that many of them still do not value that honor. And what about those dozens of draftees who have been brought to account for criminal acts in recent years and have not accompanied their peers into the service? It is high time to think about why a once good system now breaks down, why it continues to be ineffective.

Major S. Solomonov, propagandist with the Leningrad city military commissariat, and I tried to find the answers to these questions. This is the picture which emerged.

Graphically, this is the system today. Each of the rayons has a rayon coordinating council. Below that in the system is a council for military-patriotic work in the CPSU raykom, followed by a rayon commission for assisting the draft. Still lower is an assisting committee in the rayon military commissariat, followed by commissions for assisting the draft at rayon enterprises, corresponding sections and individuals in the rayon Komsomol committee, the DOSAAF organization, the internal affairs administration, the Znaniye society.... In short, there are 27 different "levels" in the set-up. This means dozens of officials at the rayon level and hundreds at the city level. Plus thousands of public workers. When I asked Colonel A. Lyzenko (he and Major Solomonov, the propagandist, maintain communication between the people and organizations on this "ladder") at what "level" real work is to be found and there are clearly evident results, and how these are specifically manifested, he had trouble answering.

"Beneficial things are unquestionably being done, but it is difficult to say who makes the contribution in each individual case. It is sort of a common contribution...."

Is that good? Is this not a situation in which, while fulfilling the decree passed by the CPSU Central Committee and the USSR Council of Ministers aimed at further improving preparation of the youth for the military service, people in the city have not really concerned themselves with the main thing--increasing personal responsibility. We have a phenomenon in which on the service it appears that a great deal of nothing less than global work is being done and there is a lot of incoming and outgoing paperwork, while workers at the upper levels either duplicate one another's work or because of the position they hold are merely simultaneously members of many different commissions. This is an honor, of course, but how does it involve any real work? And who specifically answers for the end result, the preparation of the youth for the service? It would appear that everyone works hard, that everyone is responsible, but just who can be held directly accountable? Everyone? This would mean no one personally. Can the work be truly effective in this situation? Hardly. Take this example. The establishment of a city induction center in Leningrad has been in the works since 1980. Year after year has gone by, however, but the matter has become even more deeply bogged down in paperwork and empty talk.

Or take this curious case. Wanting to do its bit for the common cause, the Main Administration of Vocational and Technical Education compiled a long-range plan of comprehensive measures toward preparing the youth to serve in the army. That would seem to be a good thing. And I have in my hand nothing less than a scientific, album-like work of 85 pages. Everything has been considered, defined and programmed right up to the year 1990: the substance of the work, the date, the time and place where it is to be performed, the names of those responsible for carrying it out, the methodological objectives and even the results (!). But that is not all. It seems that creative groups have been formed with military instructors of the SPTU [special vocational and technical school?], which will make a detailed study of aspects of the initial military training over a period

of 5 years. One of the groups is concerned with the problem of "Forecasting (?) and Shaping Advanced Know-How in Initial Military Training and its Realization." The subjects to be studied include "Forms and Methods of Stimulating Thinking and Cognition in Students in the Initial Military Training Classes."

Outwardly this would all appear to be proper. It has scientific terminology and a modern sound. But actually.... Is this the kind of job for military instructors, and is it a real job?

Just who are today's military instructors? Most of them are former unit commanders, their deputies or instructors from military schools. That would appear to be the best possible thing--to have the most experienced and well prepared group of instructors working with the youth. Almost half of them are 50 years old or older, and more than 30 percent of them are past 60 years. Are they capable of making military affairs interesting to a young men in Adidas jackets with dyed-hackle hairdos, of getting them to love military affairs and consider them important? This is very doubtful. What we need here, in addition to everything else, is salient personal example--in cross-country running and on the obstacle course, in the military formation and at the firing range. "Do as I do!" is perhaps the most effective principle in working with the youth.

We need military instructors capable of preparing the youth in the modern way to defend the homeland. There must be more of them every year. And we need to think about this today. One military department at a teachers' institute turning out a small group of military instructors for the oblast will not solve the problem. Particularly since a considerable number of them leave the schools after 2 or 3 years. Everyone knows about this, but the problem cannot be resolved within the borders of Leningrad or even the oblast....

There is also another problem.

"We would conduct military-patriotic indoctrination in the youth clubs with pleasure, but we do not see any interest in this on the part of the rayon leaders."

I heard this from Warrant Officer (Reserve) Yu. Manilov, holder of two combat decorations, at a meeting at a club for reserve military personnel set up in Kuybyshevskiy Rayon. The leaders of similar associations already in existence in the city's 19 rayons met that day. They met to discuss a matter of considerable importance--what sort of benefit they, the more than 2,500 former fightingmen and internationalists, could provide the city and the youth. And what this would require. Unfortunately, however, there were no constructive decisions. No one from the party or soviet organs and no leaders from the Komsomol obkom or gorkom attended the meeting.

"Apparently," Lieutenant Colonel M. Kovbasyuk, one of the rayon military commissars, expressed his opinion, "it all has to do with the fact that it is not easy to find a common language with the reserve military men, particularly those who served in Afghanistan. They are allergic to demagoguery. They do not accept empty words and flowery statements. Not all of the Komsomol leaders by far feel comfortable among them. Particularly when people who have not served in the army and do not understand the essence of the matter try to boss them."

Mikhail Vasilyevich touched upon what I consider to be an extremely important thing. It is competence, without which any cause is inconceivable. For some reason, however, it is believed that any functionary is perfectly capable of handling such an area of activity as the military-patriotic work and preparation of the youth for the military service. Is the fact that incompetence exists at many levels--in the school, the SPTU, at the enterprise and in the Komsomol raykom--not the reason why problems occur at every step? For example, only four of 18 people in charge of sports and mass defense sections of Leningrad's Komsomol raykoms have completed their active duty. Only six of 38 male secretaries of Komsomol raykoms have received the military schooling of life, the schooling of indoctrination.

Within the public education and the vocational and technical educational systems mainly women direct or are responsible for the indoctrination, and mainly women are in charge of the youth clubs. What do they know about the military service, about its modern requirements?

The telephone rang that day as I was talking with Major General I. Pavlov. Ivan Andreyevich later explained that the call was from the party gorkom, that they had asked for a deferment from the draft for a young man who was greatly needed in the Oktyabrskiy Rayon Komsomol Committee. He showed promise....

"For what kind of work? With whom?" I asked.

"Can't you see the naivete of the question?" the general replied. "Not with our segment of the youth, of course."

I later thought for a long time about the call to the military commissar and about his reply to my question. I could not help asking myself why it is that certain party and soviet workers, enterprise directors and representatives of departments try to protect certain people from serving in the military. Why is it the usual thing that mostly people who do not know the service are advanced to positions putting them in charge of indoctrinating the youth. I have not found the answers to these questions. The matter was cleared up somewhat when I learned that officer-training classes had not been conducted for the city's party and management workers for 10 years in a row, right up to October 1985. This was considered to be something secondary, something not mandatory. Now that the situation is being straightened out, however, has everyone understood the acuteness of the problem of preparing the pre-draft youth? Unfortunately, the facts cited above do not provide the grounds for answering in the affirmative. And if there is no understanding of, no conviction of, the importance of the matter, can we expect vitally necessary changes in the military-patriotic indoctrination of the youth?

11499

ARMED FORCES

EXERCISE NOTIFICATION FOR AUGUST MANEUVERS IN UKRAINE

18010229b Moscow KRASNAYA ZVEZDA in Russian 11 Aug 87 second edition p 1

[Report: "In the Armed Forces of the USSR"]

[Text] Forces of the Carpathian Military District will conduct an exercise between 17 and 22 August in the area of Rava-Russkaya, Yavorov, Gorodok and Nesterov in the Ukrainian SSR. It is being conducted to improve the field training, command and control, and the interaction of various combat arms in the execution of combat training missions.

Units and formations of the Ground Forces and Air Forces totalling 18,000 men will be involved in the exercise.

The government of the USSR has invited observers from all the states participating in the Conference on Security and Cooperation in Europe to attend the exercise in accordance with the document issued at the Stockholm Conference.

11499

ARMED FORCES

COL GEN AVN GORELOV RETIRED FOR 'OBSOLETE METHODS'

18010001a [Editorial Report] Moscow KRASNAYA ZVEZDA in Russian on 7 August 1987 carried on page 2 a 500-word article by Captain I. Zheleznyakov, the commander of an aviation detachment in the Far East Military District, entitled "Letter to the Editor: How We Were Inspected." The letter complained that an inspection team flown in from Moscow and led by Colonel General of Aviation S. Gorelov had failed to perform properly.

Upon arrival the inspection was delayed for some time, so that Colonel General Gorelov could deplane with appropriate ceremony from a proper set of boarding stairs. Everyone was kept waiting while the unit searched for a boarding stair.

Thereafter, the inspectors devoted themselves to superficial trivia, rather than to issues important to the daily life of the unit. A considerable fuss was made over stools which the inspectors wished to see varnished with a clear finish rather than painted, so as to show the wood grain. They were likewise very concerned over the uniformity of paint color on the buildings, expressing a preference for what the author referred to as "cement oatmeal/swill". By contrast the inspectors failed to address problems important to the daily living conditions of the garrison, including: "holes in the roofs of quarters," a faulty heat supply system and the "rotten" electrical supply system.

As Captain Zheleznyakov pointed out, the inspectors had come thousands of miles. Therefore, the garrison expected a "serious analysis" and "concrete assistance" from the inspection team. Instead the aviators were left "bewildered" by the trivial and confusing results of the inspection.

The letter of complaint to KRASNAYA ZVEZDA was quickly acted upon. In less than a month, on 4 September 1987 KRASNAYA ZVEZDA published an unattributed 100-word response entitled, "Measures Have Been Taken". The response referred to "obsolete methods of work by the members of the commission led by Colonel

General of Aviation S. Gorelov." The matter was referred to the Chief of the Air Force Main Staff, Colonel General of Aviation V. Pan'kin for action. He reported to KRASNAYA ZVEZDA that measures were taken. "Colonel General of Aviation S. Gorelov has been recommended for retirement from the cadres of the armed forces."

PROBLEM OF RECRUITING MINORITIES TO OFFICER CORPS

18010001b [Editorial Report] Ashkhabad SOVET TURKMENISTANY in Turkmen 13 June 1987 carries on page 3 a 3,200-word article by Colonel General N. I. Popov, commander-in-chief of the Turkestan Military District entitled "Military-Patriotic Education: A Sacred Obligation" touching on problems of concern in the recruitment of military personnel and officers in Turkmenistan and Uzbekistan. "We have to view the problem of training officer cadres from local nationalities as being related to military-patriotic education. At present their percentage in our officer corps is minute. The situation is a result of unsatisfactorily guiding the student youth into a professional military direction in some places. Due to the weakness of general knowledge and language preparation of youth from Turkmenistan and Uzbekistan applying for admission to higher military schools, many fail the entrance every year. For example in 1986 only 20% of the candidates from our republics have entered our country's military schools."

RAYON MILITARY COMMISSARIATES CRITICIZED

1801001c [Editorial Report] Baku KOMMUNIST in Azeri on 2 June 1987 carries on page 3 a 1,500-word article by A. Alaskarov, chief of the political department of the AzSSR Military Commissariat, criticizing ineffective organizations under his purview. The article is titled "Military-patriotic Education: In the Spirit of Internationalism". Noting that in effective organizations: "The youth are taught love for the fatherland, faithfulness to the ideals of October and Russian military terminology is taught to those whose Russian is weak," it adds that one cannot say this about Balakan, Vartashen, Jabrayyl, Gadabay, Yardymly and Ordzhonikidze (in Baku) rayons. Military commissariates in these rayons are located in crowded, barren buildings. The lack of proper conditions creates a negative influence on youths' military training. Their Russian is poor. They are not physically qualified and they have trouble complying with normal military commands.

/9274

ARMED FORCES

BRIEFS

EDITORS APOLOGIZE FOR ERROR--"Sobriety Is a Standard of Life" was the title of an editorial published in KRASNAYA ZVEZDA on 6 August of this year. It cited a case of the sale of alcoholic beverages by coupon in one of the airborne units. Unfortunately, the author of the editorial used an obsolete case and made an error. Officer V. Ryzhkov's name was erroneously given in this context, and the editors apologize to him. [Text] [18010229c Moscow KRASNAYA ZVEZDA in Russian 11 Aug 87 second edition p 2] 11499

WESTERN TANK DEVELOPMENT REVIEWED

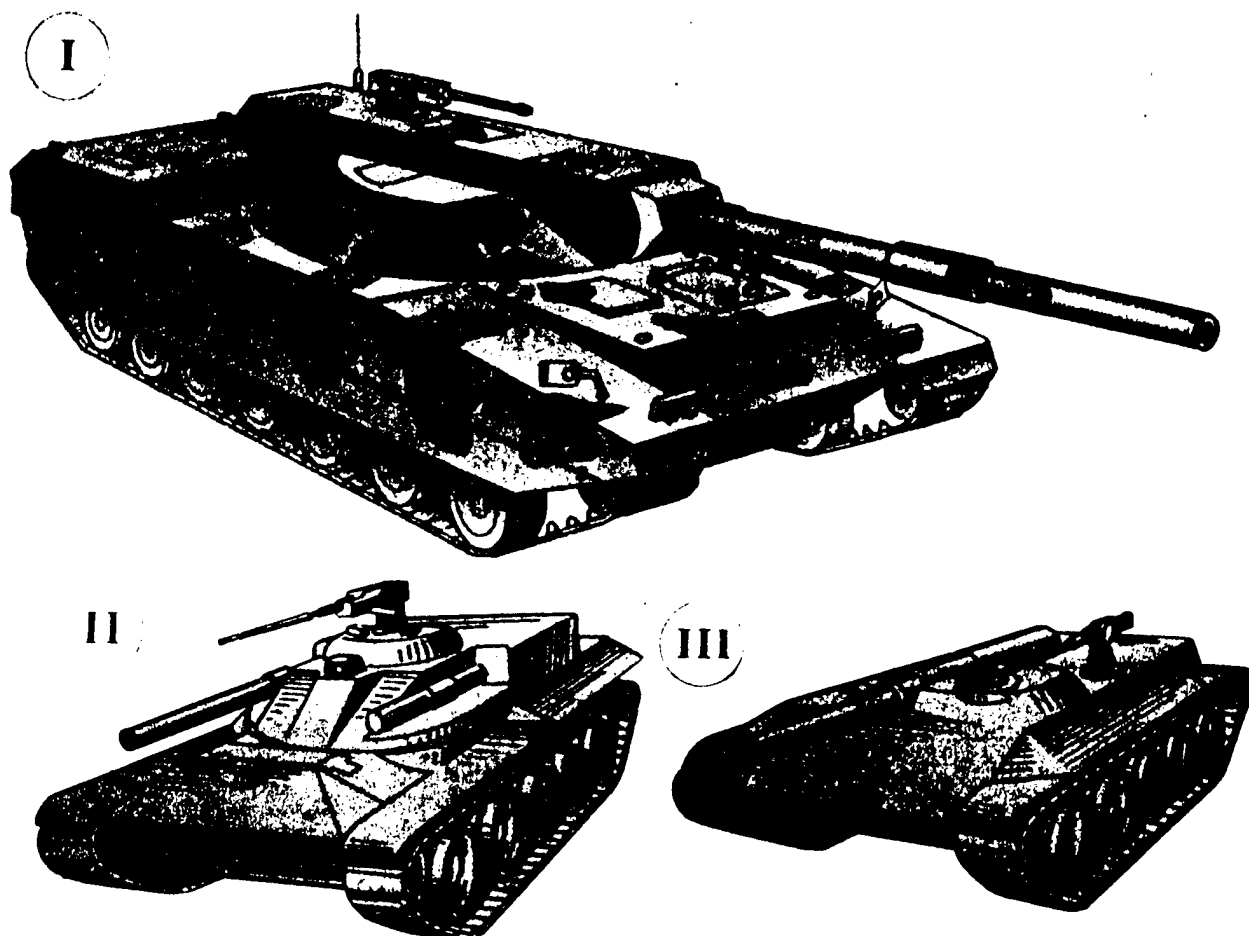
81442133a Moscow TEKHNIIYA I VOORUZHENIYE in Russian No 9, Sep 87 pp 8-9, variants of component schematics on back cover

[Article based on foreign press materials by Col O. Ivanov, candidate of military sciences: "What Will the Tank Be Like?"]

[Text] This question has been widely discussed of late by foreign military specialists. The opinion expressed in particular is that the fighting vehicle of the 2000's will incorporate new configuration approaches more fully meeting the basic requirements placed on a tank: a combination of high firepower and mobility, low vulnerability and adaptation for rapid restoration of combat qualities. In accordance with these views, designers' efforts are concentrated on seeking solutions capable of substantially influencing a change in traditional configurations (see figures on next page).

It is proposed to reject a crew accommodation in which the commander and loader are positioned above the driver-mechanic in favor of a single-tier configuration where all crew member stations are at the same level. This figures to reduce the height of the manned compartment by 30 percent. It is thought that giving up the turret and remoting the main armament out of the hull also will allow reducing vehicle width by approximately a third. Implementation of these two design solutions together could approximately halve the area of frontal surfaces of the tank's manned compartment. This in turn will permit almost doubling armor protection of the hull's frontal components as well as installing a second hull roof plate (using spaced armor protection). Remoting the main armament out of the hull naturally requires giving up the gun's manual loading and using an automatic gun loading system and remote gun control. The United States is developing the future MBT-2000 main battle tank with approximately that configuration using the principal M-1A1 tank chassis assemblies. Its design combat weight is around 55 tons with a crew of three.

Another design solution provides for accommodating the main armament in a turret, but one of very low height and minimal frontal area. The objective is to avoid the primary drawback of an exposed gun arrangement in which manual loading is practically impossible in case of automatic equipment failure.



In searching for the most rational tank design, developers are proposing various solutions. One is an external placement of the gun above a low two-place turret or on a rotating platform, which permits lowering the tank silhouette. In addition it becomes possible to concentrate the crew in a lesser volume (in a special capsule), which is said to allow giving tankers more reliable protection.

One design provides for a low turret divided by a smoothbore gun (Fig. I); others provide for a coaxial position of main armament in a casemate-type turret (Fig. II). A number of advanced developments propose to position the armament on a remotely controlled traversing platform (Fig. III).

Foreign military specialists consider the crew's complete dependence on functioning of the automatic loader (since it is practically impossible to load the gun manually in an emergency) to be a substantial deficiency of mounting tank armament externally. Therefore it is still considered most preferable to position the gun in a low turret with minimal frontal projection area.

Variants of design arrangements of a turret design of a "casemate" tank with one or two guns installed in the hull and with a turret of reduced height have been tested. In analyzing the data of comparative tests, FRG military specialists are of the opinion that the Leopard-3 tank with a combat weight of approximately 50 tons and a crew of three will be a further development of the Leopard-2 tank's design arrangement. The Leopard-3's armor protection must allow it to retain its combat effectiveness when hit by a modern antitank projectile.

Also among the future configuration solutions are those in which the vehicles are planned to be assembled from modules (sections). The modular design is planned for a vehicle with various combat missions (tank, BMP [infantry fighting vehicle], BRM [combat reconnaissance vehicle]). According to the concept, a frame with running gear and modules for the crew and for the engine-transmission compartment are common to all types of vehicles; only the functional modules vary.

In the crew module the commander is situated in the center, the driver-mechanic on the left and gunner on the right. Their work stations can be equipped identically permitting any one of them to perform observation, conduct fire or drive the vehicle if necessary.

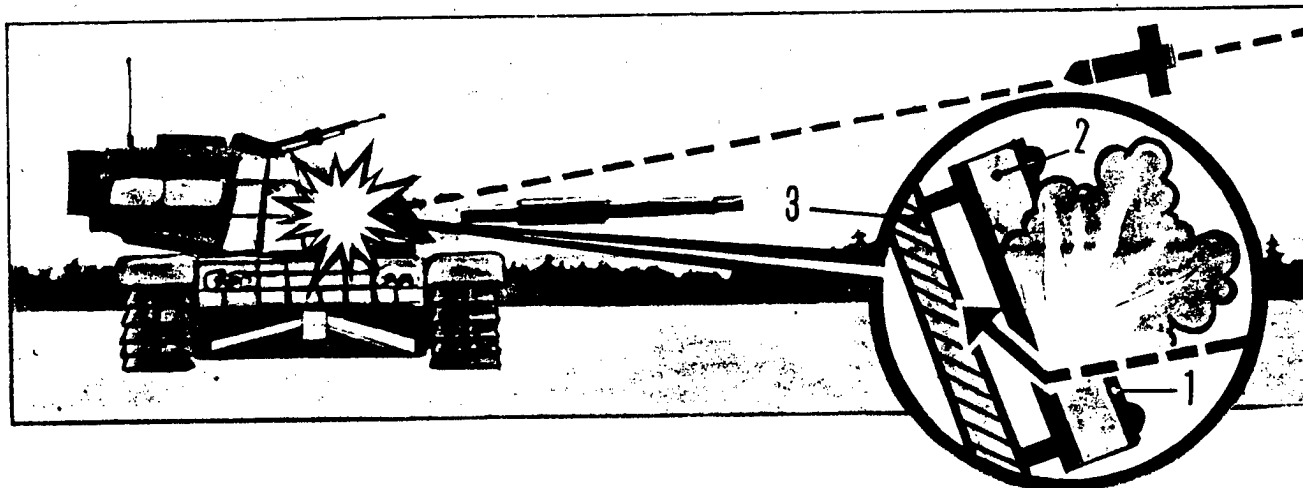


Diagram of the action of a tank's dynamic protection element. The elements consist of boxes of thin metal plates (1) containing high explosive (2) which detonates when hit by an ATGM but which is not initiated when hit by bullets or a shell fragment.

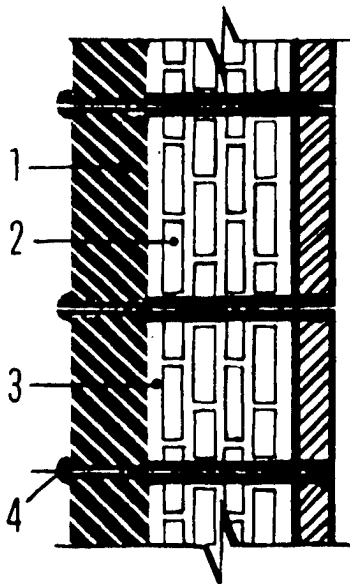
According to a foreign press report, dynamic protection elements weaken the armor penetration of a hollow-charge jet by 50-60 percent and its effect on the tank's main armor (3) is considerably lessened as a result.

The functional module is planned to be located in the rear part of the chassis. It will weight 10-12.5 tons in the variant of a main tank's fighting compartment. The gun can be installed outside the module and fitted with an automatic loader. It is planned to place an intermediate panel between the

functional module and crew module not only to mechanically couple the basic modules, but also to connect their electrical circuits.

It is planned to conduct fire control and observation using television and thermal imaging systems. A display screen is to show the tactical situation on the battlefield (position of friendly and enemy troops) as well as cartographic data. It is planned to install navigation gear and automatic data transmission devices in command tanks.

In discussing variants of main armament of future tanks foreign military specialists arrived at a common opinion as to the need to keep the 120-mm caliber of smoothbore guns. For example, it is planned to arm the MBT-2000 with the Rheinmetall 120-mm smoothbore gun installed on a traversing metal platform. It is planned to use shortened rounds for the gun in order to accommodate as many of them in the tank as possible and facilitate loading using mechanical devices. Auxiliary armament is a 20-mm or 30-mm automatic gun capable of engaging airborne targets as well. It is planned to install a thermal imaging observation and aiming system with an effective range of up to 4,000 m as well as an acquisition radar aboard the vehicle.



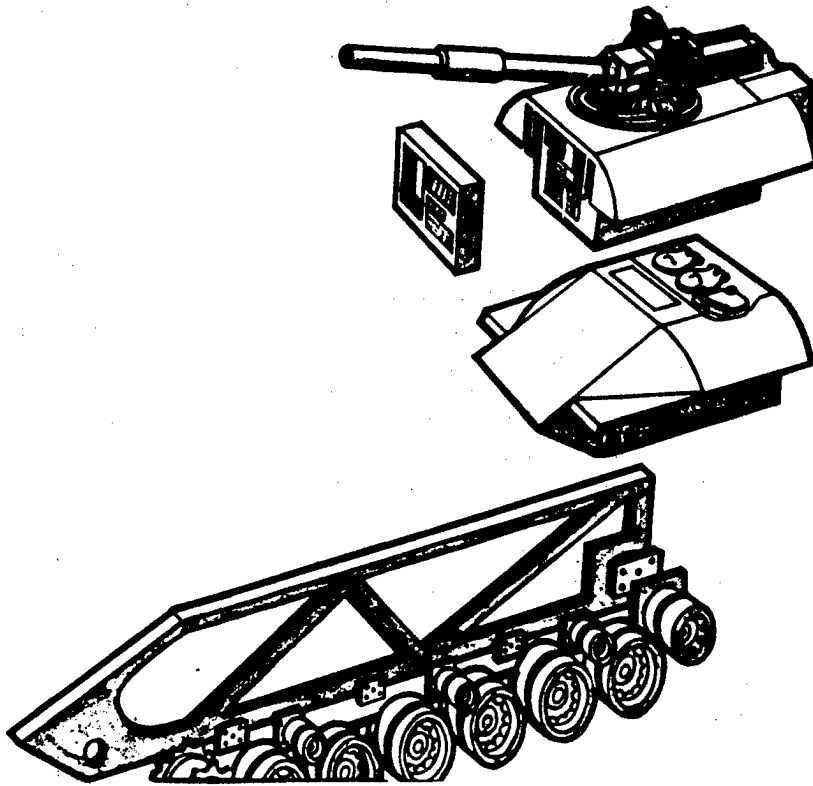
Chobham combination armor. It is asserted that it is one and a half times more resistant to the effect of shaped-charge projectiles in comparison with monolithic steel armor of the same thickness. It also withstands armor-piercing composite shot better.

The outer armor plate (1) is made of high-strength steel. A packet of ceramic elements (2) (laminae) is contained in an aluminum or plastic envelope (3). The rear (inner) plate is made of tensile steel. The ceramic laminae are connected with each other and with the envelope by an epoxy resin, and both armor plates and the packet between them are drawn together with bolts (4).

West German specialists plan to place a similar gun with automatic loader and thermal imaging aiming and observation system in a low-profile two-place turret. A small-caliber automatic gun may be used as auxiliary armament.

It is also planned to install a 120-mm smoothbore gun with automatic loader in the future French AMX-48 Leclerc (EPC) tank (combat weight 50 tons, crew of three).

The auxiliary armament is a 30-mm automatic gun and 7.62-mm antiaircraft machinegun. The main armament ammunition is standardized with West German ammunition which has a fully combustible case. The AMX-48 hull is to be made of steel armor with an "active" layer which triggers when hit by armor-piercing and shaped-charged projectiles. The tank's top armor protection is also planned to be reinforced.



Model of a tank configured from separate modules joined by common frame and running gear elements. The unusual nature of the vehicle's configuration solution is in the forward positioning of the engine-transmission compartment and crew accommodation in the mid-portion of the hull. The main armament and fire control system elements are remoted outside the tank hull. Foreign specialists believe that the absence of any kind of gun protection is compensated by a sharp decrease in height, which means reduced likelihood of the tank being hit on the battlefield. An individual damaged module can be replaced with another.

There have been reports of attempts to raise the muzzle velocity of the fin-stabilized composite shot to 2,200 m/sec to provide a flatter trajectory and lesser flight time. In particular, one American firm together with the West German Rheinmetall plans to use liquid propellants (ZhMV) with a regenerative combustion system for this purpose. It is believed that in addition to increasing charge power their use will considerably simplify the task of externally accommodating the armament. In addition, notes the foreign press, the tank crew will be under less risk since the turret will hold only shells and the liquid propellant will be stored outside the turret or serve as an intermediate layer for spaced armor protection.

Foreign military specialists believe that both diesel and gas-turbine engines with 1,500-2,000 hp will be used as power plants in future tanks (their fuel consumption level today is practically identical). They do not preclude the possibility of using adiabatic engines. It is planned to use gearboxes with double power flow and with an infinitely variable change in gear ratios in the transmission.

In the opinion of experts, the running gear of tanks will not undergo special changes. Torsion-bar and hydropneumatic suspensions will continue to be used. Mixed use of torsion-bar suspension (for inside wheels) and hydropneumatic (for end wheels) also is not precluded. It is expected that blade-type hydraulic shock absorbers and hydraulic rubber stops for road wheel arms will be widespread. It is possible that improved tracks will be used having a lighter weight and increased service life (up to 10,000 km) and creating a lower noise level during movement. Semiautomatic track tensioning mechanisms may be introduced.

The modernization plans for some types of tanks propose to strengthen their armor protection by mounting additional individual plates on the turret and hull made of materials that are more shellproof. It is also reported that such a step will have a negative effect on the power-to-weight ratio, which means also on average speed.

Spaced armor protection is an important element of protection for the crew and tank devices against damage by antitank weapons. One variant of such armor protection, side screens (folding, mounted during operation, and built-in), is already being used today. Two or three armor plates usually are included in spaced armor protection; there can be either a layer of air or a layer of fluid (water, fuel, liquid propellant and so on) contained between them. The effect of spaced armor protection also will be obtained if in the course of modernization additional armor plates are placed on the main hull (turret) plate with a gap.

COPYRIGHT: Tekhnika i vooruzheniye", 1987

6904

T-72 TANK: SPECIAL FEATURES OF TECHNICAL SERVICING

81442133b Moscow TEKHNIKA I VOORUZHENIYE in Russian No 9, Sep 87 pp 10-11

[Article by Col V. Moskaiev; first paragraph is TEKHNIKA I VOORUZHENIYE introduction]

[Text] Providing optimal operating conditions for vehicle machine units and systems depends on the completeness and timeliness with which a large number of technical servicing measures are performed. This article tells about two of the most important ones.

Power Plant Care

High ambient air temperature and higher dust content of the air in summer directly affect engine operation. Violation of T-72 tank operating rules prescribed by manuals can lead to overheating of its engine and a drop in its power output.

To ensure necessary temperature conditions, above all monitor the fluid level in the engine cooling system on a timely basis, since a low level may become the reason not only for local overheating, but also for seizing of pistons. In a completely filled system the coolant in the expansion tank and radiator must be at a level of 65-70 mm from the upper faces of filler openings. Let us recall that a three-component anticorrosion additive (50 g each of potassium bichromate, sodium nitrite, and trisodium phosphate per 100 liters of water) must be added to the water. No more than 5 liters of pure water without additive can be added to the cooling system.

If threaded and rubberized connections are serviceable in the cooling system, the reason for an excessive fluid level drop is a maladjustment of the pressure and vacuum release valve (PVK): premature opening of the pressure release valve leads to intensive evaporation. Therefore periodically check the condition of the pressure and vacuum release valve using a special instrument. With proper adjustment the pressure release valve opens when excess cooling system pressure is $2.1 \pm 0.1 \text{ kg/cm}^2$, and the vacuum release valve opens with a vacuum of $0.05-0.15 \text{ kg/cm}^2$ in the system.

Recommended coolant temperature in the cooling system of an engine filled with water is $70-100^\circ\text{C}$; maximum permissible temperature is 115°C .

Engine temperature conditions are adjusted by changing the louver position. Since a great rarefaction of the air is created with louvers closed in the engine compartment under operating conditions, great effort has to be applied to the actuating handle to open them. Therefore before opening the louvers it is recommended that engine crankshaft rotational frequency be reduced to approximately $16.6-20 \text{ sec}^{-1}$ (1,000-1,200 rpm). As soon as coolant temperature reaches maximum permissible (as indicated by a warning light located by the observation devices on the driver-mechanic's right), open the air inlet and outlet louvers (check to see that they are open), then shift to low gear and increase engine rpm.

Switch fan operation to a higher stage in hot weather when ambient air temperature is above 30°C . The point of fan clutch slip must be within the range of 18-50 kg·m.

In the course of tank operation see that no oil, fuel or other fluids fall on the surfaces of radiators which might promote dirt build-up. Flush dirty and dusty radiator surfaces with water, then blow them off with compressed air. Also remember that it is undesirable to place various gear--carpets, canvas, boxes and so on--on vehicle louvers.

Recommended engine crankshaft rotational frequency is $26.6-31.6 \text{ sec}^{-1}$ (1,600-1,900 rpm), its lubrication system pressure $5-10 \text{ kg/cm}^2$, and oil temperature within the range of $70-100^{\circ}\text{C}$ (permissible temperature not over 115°C). With an ambient air temperature higher than 35°C , however, outlet oil temperature may reach 120°C . Shift into low gear and reduce shaft revolutions if oil temperature coming out of the engine exceeds maximum permissible temperature.

To ensure that dust does not get into engine cylinders, during general inspections carefully check the engine air supply system seal, paying special attention to connections of the air cleaner and pipes for sucking dust from the dust collector and ejector. Remember that air cleaner operation deteriorates when the cyclone dust collector becomes fouled from improper oiling of cassettes and with the presence of oil on the floor of the vehicle and on parts situated in the path of air going into the air cleaner.

The SDU-1A-0.12 bulb on the driver-mechanic's monitor panel signals that the air cleaner requires servicing. After the bulb has gone on engine operation is permissible for another five hours under conditions of average dust content of the air, and for no more than two hours with high dust content. Clean dirt from the outside of the protective grids and the air cleaner body before removing the air cleaner.

Moisture will not enter engine systems if sealing gaskets of tank filler caps are serviceable. Operation of the T-72 tank is prohibited without caps or with faulty gaskets (cap valves). Experience has shown that gaskets protect fuel and oil from intense water encroachment rather effectively, but do not eliminate it altogether. Therefore during the tank's technical servicing drain residue from internal fuel and oil tanks every 6,500-7,000 km after first allowing the fuel to settle for 3-5 hours (after the tank returns to the motor pool). In so doing drain 3-5 liters of fuel from valves in the left

forward tank and the rack tanks and remove fuel from external tanks by flushing.

If water is discovered in the oil residue then pour at least 45 liters of flushing oil into the lubrication system, start the engine and allow it to run with a crankshaft rotational frequency of $25.6-31.6 \text{ sec}^{-1}$ (1,600-1,900 rpm) until oil temperature reaches 70°C . Then drain the flushing oil from the oil tank and engine crankcase and refill the system. After this change the oil in the external tank.

Before Starting Off

Preparing the T-72 tank for movement includes performing a general inspection of the vehicle, preparing its engine for starting, starting it and warming it up, and monitoring power plant operation while standing still.

Give special attention in a general inspection to filling of lubrication, cooling and fuel systems, the extent of storage batteries' charge, cylinder air pressure, secure fastening of the covers of hatches and access holes and of caps, and cleanliness of optical lenses of observation devices. Correct all deficiencies and only then begin engine start-up. Preparation of the engine for starting has its features depending on ambient air temperature. For example, with negative temperatures a reliable engine start is possible only by warming up the engine with the preheater.

Before starting the engine, place the fuel distribution cock handle in the "Tanks In" position. See that the manual fuel feed system handle is in the zero delivery position, connect the storage batteries to the tank on-board electrical supply system and exhaust air from the fuel supply system by pumping it through with the RNM-1 or BTsN-1 pump with air outlet valve open.

Immediately before starting the engine feed engine oil into the lubrication system to ensure normal operating conditions of the crankshaft and connecting rod bearings. To do this use the oil circulating pump (MZN) to create a pressure of at least 2 kg/cm^2 , which is maintained for 3-5 sec first without turning over the crankshaft and then by cranking it several turns but without supplying fuel. The MZN-2 can be engaged for no more than a minute, and can be engaged again only after 20-25 seconds.

The engine is considered warmed up and ready for starting if coolant temperature has reached 80°C and a pressure of at least 2 kg/cm^2 is created in the lubrication system with the oil circulating pump on. Start the engine using independently operating systems--the air starting device or the starter-generator. Before starting the engine place the gearshift lever in neutral, open the air cylinder valves, tighten the stopping brake and give a warning signal.

Create maximum possible oil pressure (but no lower than 2 kg/cm^2) with the engine's MZN-2 pump button located on the driver-mechanic's monitor panel, and without switching off the MZN-2 press the starting valve lever or the "Starter" button, turn over the engine crankshaft 3-4 turns without supplying fuel and then, pulling out the accelerator pedal approximately one-third of the way, start the engine.

Duration of one-time compressed air supply is no more than 5 sec and starter engagement is up to 8 sec. The engine can be restarted with the starter-generator only after 15 sec. Three attempts are permitted, after which there must be a 15 min pause for electrical gear to cool. During the pause find out why the engine didn't start and correct the fault. Then set the minimal stable idle rotational frequency of 13.3 sec^{-1} (800 rpm) and fix the position of the accelerator pedal with the handle. If oil pressure (according to the standard manometer) does not reach 2 kg/cm^2 , stop the engine immediately and learn the reason for the trouble.

After starting the engine, warm it up at idle with inlet and outlet louvers closed. Bring coolant and oil temperature up to $15\text{--}20^\circ\text{C}$ initially at a crankshaft rotational frequency of 13.3 sec^{-1} (800 rpm) and then, gradually increasing rotational frequency to $25\text{--}28.3 \text{ sec}^{-1}$ (1,500–1,700 rpm), bring the temperature up to 30°C . After this it is authorized to move in low gear to accelerate the warm-up.

The engine is considered ready for normal operation at all power settings if coolant and oil temperature is at least 55°C , but lengthy engine operation (more than 30 min) with a coolant temperature below 65°C is not authorized because of the possible gumming of cylinder-piston group components.

After warming up the engine shift the louver actuating handle to an intermediate position, which will ensure that recommended operating temperature is maintained in cooling and lubrication systems, and remove the carpet from louvers over the radiators and stow it in the ZIP [spare parts, instruments and accessories] box. To avoid accidents and breakdowns the driver-mechanic constantly monitors operation of the power plant and transmission from the monitoring-measuring instruments and signal lights during movement. Recommended engine crankshaft operating rotational frequency is $26.6\text{--}31.6 \text{ sec}^{-1}$ (1,600–1,900 rpm). The recommended oil and coolant temperature (with cooling system filled with water) is $70\text{--}100^\circ\text{C}$ and maximum permissible temperature is 115°C , but it is also permitted to go up to 120°C if ambient air temperature is above 35°C .

As soon as coolant temperature reaches maximum permissible, which is signalled by a special light located by the observation devices to the right of the driver-mechanic, immediately open inlet and outlet louvers, shift to low gear and increase engine rpm. If the temperature does not drop after this (the light continues to burn and standard instruments show a high temperature), stop the vehicle, bring coolant temperature at idle to 90°C , stop the engine and check how full the cooling system is. If necessary add to the system and learn the reason for the coolant leak. Sometimes with a completely filled cooling system coolant temperature does not drop with a shift to low gear and higher rpm. Then check the point of fan clutch slip without fail.

Oil pressure in the engine lubrication system with a rotational frequency of $21.6\text{--}31.6 \text{ sec}^{-1}$ (1,600–1,900 rpm) must be $5\text{--}10 \text{ kg/cm}^2$, it may reach 12 kg/cm^2 on the standard manometer with an oil temperature below 65°C , and it is at least 2 kg/cm^2 in the regime of minimal stable idle rpm. Transmission oil pressure must be within the range of $2\text{--}2.5 \text{ kg/cm}^2$, and in sixth and seventh gear $2\text{--}3 \text{ kg/cm}^2$ (it is permissible for pressure to drop to 1.5 kg/cm^2 , and it may drop to 0.5 kg/cm^2 at minimal stable engine idle rpm).

In case of a drop in oil pressure in the engine lubrication system and transmission below permissible (2 and 0.5 kg/cm² respectively) immediately stop the engine, learn the reasons for the faults and correct them.

A drop in crankshaft rotational frequency with full fuel feed indicates that the engine is overloaded. This is why we shift to low gear here. With the appearance of engine vibration it is changed to another power setting eliminating the vibration. It is prohibited to maintain an engine crankshaft rotational frequency above 32.7 sec⁻¹ (2,000 rpm).

It is permissible to stop the engine only after loads are removed from it and it operates with louvers fully open in an idle setting with shaft rotational frequency of 25-28.3 sec⁻¹ (1,500-1,700 rpm), and then operates for at least 2 min with a rotational frequency of 13.3 sec⁻¹ (800 rpm) until coolant temperature reaches 70°C.* With this it is sufficient to release the accelerator pedal and slowly shift the manual fuel supply handle to the zero delivery position.

*In the latest T-72 tanks it is permissible to stop the engine with a coolant temperature up to 90°C regardless of temperature outside the vehicle.

COPYRIGHT: Tekhnika i vooruzheniye", 1987

6904

PILOTS SHARPLY CRITICIZED FOR LACK OF DISCIPLINE, KNOWLEDGE

Moscow KRASNAYA ZVEZDA in Russian 11 Jul 87 p 1

[Article: "The Discipline of Flight Labor"]

[Text] At the June (1987) plenum of the CPSU Central Committee the party directed our attention to the fact that "instances of periodically repeated major accidents tell of a weakness in discipline and the absence of proper order." The reasons were pointed out: lack of discipline, slipshodness, negligence, and irresponsibility. This also pertains to military personnel, including aviation, for whom discipline in flight labor is the most important factor for ensuring the high combat readiness of the units and subunits.

The requirements of the documents which regulate flying work are strict and unambiguous. Each word in them has been thoroughly regulated by practice. The observance of discipline and the rules of flying labor are law for each aviator regardless of rank and post. This stresses the necessity to raise vigilance, act more decisively, and strengthen everywhere discipline, organization, responsibility, and industriousness at all levels.

The very basis of safety in flying labor and high combat readiness is knowledge and ability. As a rule a pilot who is theoretically competent and highly trained tactically (the awarded rating, unfortunately, still does not always reflect these qualities) is also distinguished by irreproachable discipline. But knowledge and abilities do not come by themselves. They are molded and instilled in subordinate commanders and chiefs. And today, it must be acknowledged, work in this direction at times bears a formal character.

Irresponsibility and shortcomings in the knowledge of aviation equipment led to gross errors in the air in the air units of the Northern Group of Forces, PVO [air defense] aviation, and the VVS [air forces] of the Turkestan Military District. In checking the ability of a subordinate to pilot at night under difficult weather conditions the deputy regimental commander for flight training, first-class military pilot Lieutenant Colonel A. Isakov, closed the canopy of his cockpit with the blind. After completion of the mission, during the landing approach, instead of opening the blind Lieutenant Colonel Isakov released the canopy of his cockpit. One more fact. On a descending glide first-class military pilot Major V. Zaporoychenko permitted altitude fluctuations of several hundred meters.

In both cases the regimental commanders qualified these preconditions as the inability of the pilots to distribute attention among the instruments. However, the reason is something else: no one conducted the preparation of these officers for the flights. They themselves had a careless attitude toward personal preparation. Both ignored the common truths: train on the ground, think of the flight in detail, mentally create nonstandard situations. As a result, the lack of self-collection and personal lack of discipline led to errors where they were absolutely not expected from experienced pilots.

One of the reliable ways for instilling in the aviators a high state of discipline and molding firm knowledge and skills is officer training which is inseparably connected with the accomplishment of the tasks of combat training. There is no greater harm than when people see the separation of their training from life. It is necessary that officer training be conducted not by the method of the "general encompassing of the personnel," but in a differentiated manner, by categories, in accordance with the tasks being accomplished at each stage of the training.

The highest criterion of aviators' discipline is their readiness to accomplish a combat mission under any conditions. Intensive combat training is now under way in aviation units and subunits. Aviators are improving their skill in aircraft handling and performance zones and in the sky above ranges. The first month of flight training showed: individual pilots lack devotion to principle, internal discipline, and a realistic evaluation of their capabilities which, in the end, leads to a loss of responsibility for high quality in the accomplishment of each flight task. But you see, contemporary aviation does not tolerate any negligence. The danger of a flight accident is contained potentially in any at first glance "trivial details." Experience teaches: we should not conceal errors and shortcomings but should disclose them, make a profound analysis of each error on the ground and in the air, attract the broadest attention of the personnel to it, and be able to show in a substantiated manner the serious consequences which result from indiscipline and forgetting flight laws. This is just how they proceed in the air units where officers N. Tabakov, V. Burukin, and Yu. Kosolapenko serve. Here, for more than 20 years the equipment knows no failures which led to flight accidents and there were no cases of breakdown through the fault of the personnel.

What is the secret of the long years of failure-free work in these units? Perhaps they fly little there or there is more improved equipment. No. The intensity of flight work and the annual plan for combat training in these units are no lower than with their neighbors and the equipment is the same. But here the attitude of the people to their business is more responsible. And first of all, the commanders serve as an example in this. A situation of high demandingness and constant monitoring the degree of readiness of crews and equipment for flights trained the people in conscientiousness and accuracy and instilled the habit of doing everything as required by the guidance documents.

Life has verified: it is possible to work without the preconditions for flight accidents. Then what is hindering getting rid of cases of carelessness, indiscipline, and a light-weight approach to the accomplishment of an important state mission--accident-free flight? The main reason is that some commanders did not completely understand the essence of changes occurring in aviation and

are continuing to work in the old way. It is necessary that they basically change the leadership style and methods and the organization and conduct of combat training and concentrate their attention on the profound and comprehensive mastering of combat equipment by the flight personnel and instilling in subordinates a sense of high personal responsibility for the state of combat readiness of the units and subunits. Much here depends on the activity and position of the party organizations. Flight safety and combat readiness are interconnected. Violation of the rules of flight labor automatically leads to a reduction in combat readiness. No one has the right to forget about this.

An important role in instilling in aviators a sense of responsibility for raising combat readiness and flight safety belongs to the inspector personnel. Now the activity of some inspector-pilots does not meet the requirements of the day. Each trip of an inspector to units should be perceived by the aviators as the best opportunity to obtain the necessary knowledge and skills and a readiness for the constructive working out of measures to ensure flight safety and the most effective procedure for instruction. It is time to stop the vicious practice of assigning to inspector posts unpromising pilots for the sake of their obtaining military ranks or length of service.

The summer training period is characterized by the increased intensity of flights. Commanders, staffs, and political organs should use all forms of education to instill new thinking and a high sense of personal responsibility of each aviator in the struggle for flight safety.

6367

CSO: 18010218

SAM BATTERY TRAINS FOR MULTIPLE CRUISE MISSILE ATTACK

Moscow KRASNAYA ZVEZDA in Russian 11 Jul 87 p 1

[Article by Maj A. Pirmagomedov, commander of surface-to-air missile battalion:
"With Missile Against Missile"]

[Text] The sky is whitish, faded from intense heat. Hot currents are being emitted from the station cab which has been heated by the sun. Inside it is also hot despite the fact that the fans are operating at full power. We look with expectation at the dynamic speaker of the loudspeaker communications: will they soon remember us at the command post? The launch officer, Senior Lieutenant Yevgeniy Shirokov, waits for the start of combat work with the impatience which is natural to him. He is well trained but he is unnecessarily fiery. Captain Valeriy Vanyushin, on the contrary, both knows his business and is able to keep himself under control. What is more, he maintains confidence in others. By the way, I feel that it is not easy for Major Sergey Kozhin to maintain confidence. The blocks, scopes, instruments, and the waiting for work itself cause him much nervousness.

He mastered all this complex and wise equipment so well that he now behaves coolly. I distract the officer with a joke about today's "bathhouse with dry steam" and I note to myself: He also should be backed up in work. I had just thought of this--and the dynamic loudspeaker came to life. Everybody immediately picked up their ears, but it turned out that the command is for another battalion. For the present, we can only drill in target search and tracking and I, as the launch control officer, do not let it slip by.

On my command the section quickly detects the "strange" target. From the information which is arriving it is evident--it is an analog of a cruise missile. We exchange glances: the situation is really special! And then, all attention to the work. I imagine the great jeweler's accuracy which is required from the adjacent unit. For the target's reflecting surface is so small that on the scope it appears as a barely noticeable flickering dot. And its exceptional maneuverability, range of altitudes and speeds!... It also stole up to the position so suddenly and cunningly and the time for its destruction is just enough.

The section of the other battalion was on the alert, however. And here another similar dot rushed toward the flickering dot on the scope quickly: the adjacent unit accomplished a launch. And here the computer recorded a hit. But what is this? The target continues to fly. Later it is learned: the detonation of the

charge by the other battalion was accomplished especially at a distance so that the target which was hit would fly for several more seconds. In short--a special situation for us. In addition, we detected two more targets. Thus, three targets. Three cruise missiles. In which regard, one is in the zone of destruction.

"Launch!"

"Launch accomplished!..."

And right here the walls of the cab are shaken by the powerful, deafening roar of the missile which had been launched.

"Hit, comrade major," Senior Lieutenant Shirokov reports with triumph.

The other targets do not permit us to relax. I note: Major Kozhin is tense to the maximum and he squeezed the control wheel so strongly that his fingers whitened.

"Low altitude.... Azimuth..." he reports and he "throws" the marker on the target blip.

In a second you want to stand and sit at Kozhin's console yourself. But I restrain myself: let him learn and become accustomed. Such minutes are much longer than other hours of regular drills. I determine: one target is flying comparatively high and the other is flying really pressing the ground. The flickering tiny blip from it disappears, merges with the "local objects," and is lost in the interference.... But nevertheless our station "sees" it rather well, even against the background of the difficult terrain.

"Target on automatic tracking," prosaically reports Captain Vanyushin.

This means that the computer is now working with the target.

"Target in the zone of destruction!"

And again the steel cab trembles from the powerful roar at the launch position. I visually imagine how our missile soars upward from the launch and accurately and irresistibly hits the other missile which is rushing toward the objective. An explosion, and the missile target scatters into small fragments. And several instants later one more accurate hit--the target flying at tremendous speed and great altitude.

We emerge from the cab under the blinding, hot sun. We congratulate each other on our success. And in the sky, the smoky traces of the training battle have not yet dissipated. Far in the steppe the fragments of the targets which we shot down are smoking.

6367

CSO: 18010218

PLANNING FOR AIR COMBAT IN GSFG

18010228c Moscow KRASNAYA ZVEZDA in Russian 29 Jul 87 second edition p 2

[Report by Lt Col V. Korchagin, Group of Soviet Forces in Germany, under the rubric "Letters to KRASNAYA ZVEZDA": "The Restructuring: Experience, Problems, Quest"]

[Text] Outlays Which Did Not Have to Be Made

In the heat of the air battle Major V. Sadykov did not notice that he had exceeded the permissible load factor. It was an inexcusable error for such an experienced pilot. An analysis showed that Sadykov had not been adequately prepared. As the pilots say, his hands had gone into action before he had had time to think. There is no question that one can and must improvise in combat, since combat is a contest. It is impermissible to lose control over one's actions, however, and every maneuver must be justified not only by expediency but also by the capabilities of the equipment.

In order to prevent such breakdowns, one must constantly improve his air training, enlarge his range of tactical procedures and strengthen his skill in employing them in combat. Errors like the one cited above are not so very rare. It is certainly not a simple matter to say why they occur, although one can get around this with the pat statement that the individual lacks skill, that he needs to work more diligently.

This is true in part, of course. But let us take a deeper look. The aviation equipment is constantly being improved and steadily increasing demands are being made of the flight personnel's training level, but the training methods remain the same. In other words, they are lagging behind the demands of the times and do not provide the proper intensity in the improvement of flight skills.

This problem was discussed at a unit methods council. The following were named as ways to resolve it: improving the methodological skills of the instructors, giving closer attention to the tactics of all the airmen, particularly the flight and squadron commanders and staff officers, improving the training facilities and enlarging their capabilities, and others. We turned to the Great Patriotic War experience for implementing the plans outlined and made a more thorough study of the combat features, of the strong and weak points, of the likely enemy's air battles, placing no limitations on anyone and providing complete freedom for

creative thinking. The versions were then compared, the best ones were selected and made available to everyone. The suggestions of Captain A. Perevyshko and Major A. Chekanin, flight commanders, were judged the best. The latter has flown in Afghanistan and has combat experience.

The personnel began to show increased interest in each flight shift and became more creative since they were implementing their own ideas. We reviewed the capabilities of the training facilities, particularly those of the simulator. It was ordinarily used in this way. The pilot was in the cockpit; the instructor was at the flight operations officer's post. In addition, each of them could have one or two people standing behind him. Major General of Aviation V. Ivanikov, first deputy commander of air forces of the Group of Soviet Forces in Germany, who was present at the methods council, suggested that arrangements should be made for the entire regiment to observe the performance of each airman. He also provided material support for carrying out the idea. Each classroom in which the airmen prepare for flights now has four monitors by means of which one can see everything occurring in the simulator cockpit and beyond the instructor's panel. Their radio exchange can be heard, and the commander who arranges the class can intervene right from the classroom in the actions of either.

We also use video recordings in addition to the "direct transmission." Video training films have been made of typical errors made by pilots during a landing, when performing piloting maneuvers and during combat employment. Now, when one leaves the classroom one can observe actual aircraft landings if flights are underway at the airfield at the time. All of the work involved in improving the training facilities was performed by our personnel, the largest contribution being made by Captain Yu. Kalukhin, Warrant Officer M. Penin and specialists in the separate communications and radiotechnical support battalion commanded by Lieutenant Colonel V. Alparov. The video films are made by Captain A. Sarkisyan, a pilot, and Senior Lieutenant A. Maksimov, chief of the television facility. These people put a great deal of effort into improving the effectiveness of the combat training and increasing the return from each minute of training time. A precise schedule has been set up for the use of the simulator. It is busy from 08:00 to 22:00, and each squadron commander knows when his subunit is scheduled to work with the simulator.

Not everyone uses it in the same well-conceived, conscientious manner, however. While pilots in the squadron commanded by Lieutenant Colonel V. Yelfimov do not waste a minute and practice on the simulator every air mission they are to perform, the attitude toward the simulator is entirely different in Major A. Golubenko's squadron. And this affects the pilots' training. The experienced and highly rated air fighters who ignore the simulator suddenly begin to stumble even when there is no cause. Senior Lieutenants M. Minich and V. Gomzov recently made some gross errors during a landing, for example. The other pilots in the squadron had a number of incompletions in combat employment.

We are combatting indulgences and simplifications in the combat training, but this problem is still a fairly acute one. Its resolution does not always depend upon the commanders directly in charge of the combat training. For example, one squadron in our regiment recently carried out a tactical flight exercise involving a transfer to another airfield. We planned the exercise to include aerial combat and the overcoming of "enemy" air defense facilities. We prepared for it

thoroughly and seriously, but due to circumstances beyond our control we made a simple formation flight along the route and landed at a neighboring airfield. We spent a great deal of time and means, but there is not a lot of benefit from such a flight. The airmen were not left with a sense of satisfaction.

The restructuring is a large, state cause, of course. It is also an indisputable fact, however, that it is either advanced or hampered locally by the actions of each of us. Actions like those about which I have spoken. Let us not forget this.

11499

REASONS FOR LOWER COMPANY COMBAT READINESS EXPLORED

18010228b Moscow KRASNAYA ZVEZDA in Russian 5 Aug 87 second edition p 2

[Article by Lt Col A. Ladin, KRASNAYA ZVEZDA correspondent, Air Defense Forces:
"They Grew Accustomed...: Why the Company's Combat Readiness Is at A Low Level"]

[Text] I arrived in the remote radar company on Sunday. To be honest, I had not assumed that I would find an ordinary day-off at the site. It has become customary that where there are things still undone in a subunit, it does not have the time for days-off. And the fightingmen--from the commander down to the soldier--understand this with their minds and accept it with their hearts. I was once in a subunit, for example, where an urgent effort was underway to set up a station which had been delivered to the site following scheduled repair work. The radarmen worked on Sunday too. I recall that they were directed by Captain V. Vostyanov, an experienced officer who loves his work. When Lieutenant R. Ishkvatov, the deputy company commander, talked about him, however, he stressed not so much the officer's professional skill--this went without saying, as it were--as much as his heightened sense of responsibility for the job. The station was set up within the period of time set by the senior chief.

But then take the other, similar company. A company in which I was told that a commission of experts had been there a week and a half before. It had discovered numerous shortcomings in the servicing of the equipment. All the more reason why, it would seem, I should have found the officers, warrant officers, NCOs and soldiers hard at work there. There was no one in the subunit, however, except Senior Lieutenant A. Valiyev, who met me, and two other officers--Senior Lieutenants A. Blinov and O. Dementyev. But the main thing was that there was no sense of any hard work being done.

It was strange to encounter this situation also because people in the company frequently speak of the collective's honor and of personal responsibility for the combat readiness. They also talk about the restructuring. What are all of the words worth, however, if there is no real practical action? It is action, after all, which is the main criterion for assessing conviction, awareness and understanding of the tasks involved in the restructuring. A commission came and pointed out shortcomings. This was the very time to roll up one's sleeves. An inexplicable lack of concern continues to reign in the company, however. There was not even a party meeting to discuss the findings of the inspection. They are coordinating things with higher headquarters, from which they await

some kind of instructions. Unlike the others, Senior Lieutenants Blinov and Dementyev did not wait for instructions from above, to be sure. And I believe they did the right thing by setting about the work on their own.

I would like to stress that the fact that the company's combat equipment is not completely in order is best known, of course, to Captain A. Bukanov, its commander, to Captain I. Borula, his deputy for political affairs, and Captain V. Lomov, his deputy for technical affairs. Just what kind of example are they setting for their subordinates? This kind of example. Although the company commander knew, even without the commission, that certain types of combat equipment were in an unsatisfactory state and that there were many urgent matters in the subunit, he still took his leave. On schedule. His deputy for political affairs left for a few days to attend a conference at higher headquarters. The deputy commander for technical affairs considered it essential to work around the house that day. I thought to myself that not one of these officers is like Captain V. Vostyanov mentioned above. They do not have the sense of responsibility or duty. Their own personal affairs win out.

How about those who signed the company commander's leave papers? Do they have a sense of responsibility for the combat readiness? Who summoned Captain I. Barula to a conference lasting several days without determining where he was most needed? Who was it that failed to enquire about what Captain V. Lomov was doing that Sunday? I believe that the sense of responsibility also of those chiefs has been dulled. This was also indicated by other facts.

Senior Lieutenant A. Valiyev, acting company commander (officially the commander of a communications platoon) and I visited the personnel on alert duty. It was a hot day, around 40 degrees in the shade, made worse by hot air flowing from the equipment operating at the command post. In addition, it turned out that the sunken facility did not have forced-air ventilation. Lieutenant Colonel M. Mezhujev from higher headquarters told me later that the command post was built a long time ago without any sort of rigid plan. No consideration was given to ventilation. But it could be installed now! And incidentally, without much trouble. They would only need to put in the necessary equipment. Neither Lieutenant Colonel Mezhujev nor the other staff officers with whom I talked wanted to accept the blame for this omission. Nor did they pay any attention to the fact that there were no fire-safety measures at the command post. We inspected all of the premises and did not see a single fire extinguisher or any other fire-fighting equipment. And all of this despite the heat, in the presence of equipment and the large cable network!

I was greatly surprised that day at the position taken by inspectors from unit headquarters. Lieutenant Colonel A. Popelnukh, deputy unit commander for rear services, visits the site. The company NCOs and soldiers told me that each time he comes he very paintakingly records all of their complaints. But what is the point? The site is still poorly provided with drinking water, for example. It was the middle of summer, but there was fresh cabbage on the table for the soldiers for the first time on the day of my visit. I also learned that the officers and warrant officers on alert duty have been forced for years to eat whatever they can bring from home. The preparation of hot meals can and must be arranged for them, however. Why has Lieutenant Colonel Popelnukh not concerned

himself with this? His justification was the following: "No one brought the matter up before now." And no one had issued any instructions. Does this mean that instructions are needed for every situation? Where is the initiative, the concern? Where is the sense of duty and responsibility for things? That is the trouble. It is lacking. If a problem is easy, it is resolved. If it requires an effort, however, the procrastination begins. Here are some more examples. The power units are not complete at several stations. Lieutenant Colonel V. Andriyevskiy and Major E. Klimov, among others, know about this. They all have the same response, however: "There are none at the depot."

A commission for giving ratings exams to officers, warrant officers, NCOs and soldiers has not been in the company once during the past 3 years. The ratings are "raised" nonetheless. I was told by Junior Sergeants N. Kulkov and I. Barskiy, Privates I. Agishev and B. Pirozhak and other fightingmen that the chiefs determine their skill by sight, from the results of the final inspections.

As I left the site, I asked myself: Does the situation in the radar company meet the modern requirements? I could not answer in the affirmative. I would like to know whether the senior chiefs who frequently visit the company ask themselves this question. If they do, then what is their answer?

11499

ALUMINUM SHAVINGS CAUSE HYDRAULIC FAILURE IN MI-8

18010228d Moscow KRASNAYA ZVEZDA in Russian 11 Aug 87 second edition p 2

[Report by Maj A. Bondarenko, Red Banner Ural Military District: "A Crew's Courage"]

[Text] Colonel Ye. Plotnikov, Captain Yu. Shevardin and Senior Lieutenant S. Lukov were to test-fly the Mi-8 following regular maintenance work. When they took their customary places in the cockpit, none of them imagined what kind of test lay ahead of them....

They covered the route without incident. Captain Yu. Shevardin, aircraft technician, noted with satisfaction when he filled out the test-flight chart: "The equipment and assemblies are operating flawlessly."

They set out on the return trip. Colonel Ye. Plotnikov glanced at the instruments: altitude, 250 meters; speed, 150 kilometers per hour. At that moment he felt the control stick jerk. It flipped from side to side, and the helicopter banked to the right.

When the crew members felt the jerk, they glanced upward as though at a command. A red light burned on the instrument panel.

"Failure of main hydraulic system," Ye. Plotnikov reported to the control tower.

"Roger," came the response from Lieutenant Colonel V. Tishchenko, flight operations officer. He was confident that the first-class pilot would find a way out of the crisis, and he therefore tried to avoid particularly interfering with the crew, which was seeking the only right way out of the situation.

In accordance with the instructions, Plotnikov ordered the airborne technician to turn off the main hydraulic system. Captain Shevardin carried out the instructions precisely. In the meantime, the pilot was straining to counteract the banking force of the rotary-wing aircraft. Another lurch occurred only 20 seconds later, however. Still greater aerodynamic stress was exerted on the control elements.

The crew members did not lose their composure, however.

"Failure of backup hydraulic system," the helicopter commander reported to "ground" and then immediately ordered the navigator-pilot:

"Lukov, take control. I need your help."

In order to restrain the helicopter and prevent it from tipping over, Colonel Plotnikov reduced the speed of the main propeller, took the aircraft into a descent and began looking for a place to land. He performed calmly. The Mi-8 continued to bank to the right and to wing over backward. The pilot attempted to reduce the verticle descent speed, but he clearly did not have the strength. The airborne technician had to be enlisted. With a joint effort the airmen succeeded in moving the gas-speed lever, which made it possible to reduce the verticle speed of descent and to ease the force of the impact upon landing. The helicopter was damaged, but the crew was not injured.

It was later determined that the critical situation in the air had occurred because an extraneous object, an aluminum shaving, had entered one of the assemblies during the maintenance work.

The veteran pilot and holder of the order "For Service to the Homeland in the Armed Forces of the USSR," 3rd degree, found himself in such a situation for the first time. This was also true for crew members Shevardin and Lukov. They had battled for 2 minutes and 20 seconds to save the practically uncontrollable helicopter and had passed the rigorous test of courage and skill.

11499

AIR, AIR DEFENSE FORCES

YEFIMOV, LOBOV ATTEND CEREMONIES FOR AIR FLEET DAY

18010228a Moscow KRASNAYA ZVEZDA in Russian 15 Aug 87 second edition p 1

[Report: "In Honor of the Holiday"]

[Text] A formal meeting devoted to USSR Air Fleet Day was held in the Concert Hall imeni P.I. Chaykovskiy on 14 August. Present in the hall were representatives of Moscow's workers, fightingmen from the capital's garrison and Air Force veterans.

The following were members of the presidium at the meeting: Deputy Chairman of the USSR Council of Ministers Yu.D. Maslyukov; O.S. Belyakov, department head in the CPSU Central Committee; A.N. Soshnikov, deputy department head in the CPSU Central Committee; USSR Minister of Aviation Industry A.S. Systsov; USSR Minister of Civil Aviation A.N. Volkov; Colonel General V.N. Lobov, first deputy chief of the General Staff of the Armed Forces of the USSR; Admiral A.I. Sorokin, first deputy chief of the Main Political Directorate of the Soviet Army and Navy; generals, admirals, officers, pilots-and-cosmonauts of the USSR, Air Force veterans, representatives of party, soviet and public organizations.

The formal meeting was opened by Colonel General of Aviation L.L. Batekhin, member of the Military Council and chief of the Political Directorate of the Air Forces.

Salutations were presented to Soviet aviators by A.Yu. Zogol, fitter-assembler at the Motor Vehicle Plant imeni I.A. Likhachev and holder of the State Prize of the USSR; S.N. Yepifantsev, secretary of the Komsomol Central Committee; V.P. Donchenko, commander of an Il-86 crew; Chief Designer A.A. Tupolev, holder of the Lenin Prize and the State Prize of the USSR; Honored Master of Sports L.G. Nemkova, world and European champion in aircraft sports.

Marshal of Aviation A.N. Yefimov, commander in chief of the Air Forces and deputy USSR minister of defense, spoke at the formal meeting.

11499

ALPATOV ON TRAINING STATIONS AND BETWEEN-CRUISE TRAINING

18010010 Moscow TEKHNIKA I VOORUZHENIYE in Russian No 7, Jul 87 pp 12-13

[Article by Rear Adm D. Alpatov]

[Text] As shown by many years of experience, the success of a cruise depends considerably on thorough between-cruise training of ship personnel in base. Maximum specialist training effectiveness is achieved above all where people know how to make maximum use of training and technical equipment--trainers, simulators, teaching machines and other equipment. In the course of practices operators develop an ability to forecast the course of events by taking into account the interrelationships of physical processes occurring in the operating equipment. To a certain extent this precludes mistakes in controlling sophisticated engineering systems such as the main power plant of a nuclear-powered submarine, for example.

In planning and carrying out between-cruise training measures it should be taken into account that considerable space must be set aside in the overall set of tasks for accomplishing a task such as preventing accidents in equipment, including through the personnel's fault. The irresponsibility and carelessness of appointed persons and attempts to deviate from requirements of the "Korabelnyy ustav VMF" [Navy Shipboard Regulations] and other guidance documents which govern the rules for maintaining and operating equipment and weapons aboard ship often are the sources of various preconditions for accidents. The training facility used for between-cruise training must provide for simulating and modeling a specific emergency (or set of emergencies), enable personnel to trace the development paths of an emergency situation from its origins to the end result, hone the personnel's interaction in the course of a specific modeled emergency, and in addition develop recommendations for localizing it.

In recent years the Navy has gained a certain amount of experience in using trainers and other technical equipment in training specialists. These are cutaway dismountable-assembled operating models of equipment, integrated and specialized trainers, special technical training equipment, data transmission and display equipment, as well as training monitors. Electrified circuits can be made in subunits, aboard ships and in base with one's own resources. Technical information equipment

should be used for viewing training slide strips and movies put out in large numbers by the Navy Film Laboratory and the Ministry of Defense Film Studio.

An analysis of the capabilities of different kinds of training equipment indicates that integrated and specialized trainers are the most versatile in forming firm skills in accident-prevention actions. Specialists also can gain skills in controlling tactical use of equipment in their area of responsibility on actual ship equipment.

Experience shows that the most complicated matter for now continues to be the introduction of technical equipment to the training process for monitoring knowledge. A number of types of training monitors coming to naval educational institutions can be used for training ship specialists of any profile in the presence of appropriate monitoring programs.

One of the most important elements of combat training for personnel of surface combatants, vessels and submarines is training in damage control for the ship and her combat and technical equipment. It is common knowledge that damage control effectiveness depends on two factors above all--the personnel's training and conditioning in taking practical actions to eliminate emergencies and battle damage, as well as promptness in direction of their activities by the control center (GKP), the ship's power plant and damage control station, and the heads of divisions and damage control parties.

As a rule, a difficult situation threatening a ship's survivability arises suddenly. It makes no difference whether or not personnel are at battle stations or in living compartments. Following the signal of an emergency situation, such as aboard a submarine, the division damage control party (it is capable of maintaining damage control of its division, which means ensuring survivability of the entire ship) must spring into action instantaneously at any minute and in any place. Much depends here on the division head, who is responsible for organizing actions of seamen who are in his entrusted division at the given moment. Success in controlling damage, fire, and water depends largely on his ability to issue instructions promptly and on his knowledge of all systems and devices. It is the head of the division having the emergency who predetermines the end result of overall damage control by his actions.

Experience shows that practical damage control skills at the ship's damage control party level can be developed rather effectively by using training complexes (UTK) and training vessels (UTS). Conditions for training seamen approximate real shipboard conditions. The capability of simulating explosions, smoke-filled and darkened spaces, entry of steam, ruptures of high pressure air lines and an unfavorable radiation background introduces high mental stress to the situation. Practices under these conditions not only permit improving personnel training quality, but also getting a view of their strong and weak points. Seamen's actions become more confident, sensible and purposeful after such practices. They essentially use all individual protective gear,

communications equipment, basic damage control equipment, and emergency rescue gear and devices. The practices simultaneously permit division heads (heads of damage control parties) to work out methods of directing the personnel and to work out coordination in patching holes, extinguishing centers of fire and so on.

Practices using integrated ship-motion and technical-equipment control trainers are necessary for the ship commander, his executive officer, the engineering department head, officers of the watch, and engineer officers. Such trainers are very effective in working out matters of the personnel's direction of damage control since they permit the ship commander, the control center team and all crew personnel to perform damage control in real time and under conditions approximating a real situation. Trainees use the very same technical equipment for control, communications, signaling and monitoring as aboard ship. Connecting the trainer with the training vessel (training complex) permits practicing control of the ship and technical equipment and direction of damage control to the full extent in close coordination with actions of personnel in the division having the "emergency."

The use of methods for algorithmizing control center personnel actions helps develop an ability to determine the main direction of damage control in a specific situation and consequently helps improve the crew's training level.

Creation of difficult and unexpected situations in control center practices allows the ship commander, engineering department head, and all officers to develop self-control and the ability not to give in to stress factors which may be caused by an increase in list or trim, entry of steam, flooding and fire. It also develops the ability to rapidly assess the situation and not only make a decision, but also implement it with the help of a previously worked out set of actions while simultaneously monitoring the effectiveness of steps taken. This is very important inasmuch as experience shows that in a real emergency the watch officer and watch engineer will not always be able to localize it if a model of its possible development has not been worked out in advance and an algorithm of control center team actions has not been defined.

Almost all control processes aboard a modern submarine have been automated and her position in space is depicted by numerous instruments, but equipment sophistication does not free an officer of the need for a sensitive perception of the situation and the ability to make a decision and plan the sequence of his actions. This is achieved by regular practices on specialized and integrated trainers and directly aboard the submarine. Trainers permit a team to practice proper, decisive actions while on shore for controlling a submarine under various emergency situations (excessive change in list or trim because of flooding inside the pressure hull, jammed diving planes and so on) which cannot be completely reproduced aboard ship. The importance of such practices increases with an increase in speed characteristics of modern submarines.

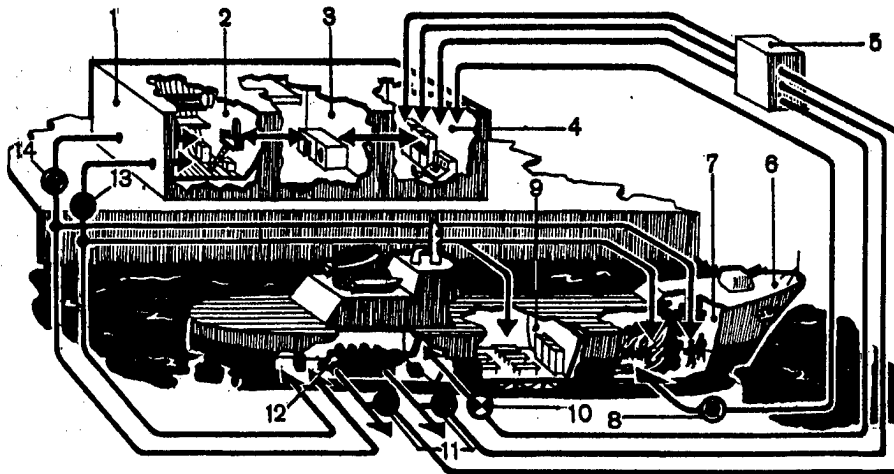


Diagram of connections of a ship-and-technical-equipment control trainer with a training vessel or complex:

1. Ship-and-technical-equipment control trainer
2. Training compartment
3. Training director's console
4. Computer complex
5. Scaling device
6. Training vessel (training complex)
7. Firefighting training compartment
8. Gas content sensor
9. Compartment adjoining compartment with emergency
10. Water level sensor
11. Water flow rate sensor
12. Flooding control training compartment
13. Communications equipment
14. Instruments for controlling ship technical equipment

Training compartments with integrated electronic submarine control trainers which presently exist in the Navy represent part of the control room with steering gear control equipment, general ship systems, monitoring and measuring instruments of the engineer officer's station, and communications and signaling equipment. Such a compartment is installed on a platform with mechanical drives which tilt it for trim and list. The possibility of creating a list and trim permits trainees to condition their vestibular apparatus and in addition determine how changes in the ship's attitude affect the actions of each team member. Such practices contribute not only to improved crew proficiency, but also to their development of moral and mental stability and confidence in their actions in emergencies.

It must be noted that no matter how sophisticated the training facility may be, high personnel training effectiveness can be achieved only by methodologically correct use of the facility. Unfortunately, practicing actions on training equipment is not done systematically aboard a number of ships and is done with an incomplete crew.

Only persistent, joint work by the command element of the force [soyedineniye] and training centers and by ship personnel aimed at high organization of specialty training, preparation for damage control, and prevention of accidents is capable of ensuring the ship crew's proper professional level in the between-cruise period and their successful accomplishment of missions of a long deployment.

COPYRIGHT: "Tekhnika i vooruzheniye", 1987.

6904

REAR SERVICES, DEFENSE INDUSTRY

INTERVIEW WITH CHIEF ENGINEER, MAJ GEN S. KOSTROMIN

18010225a Moscow KRASNAYA ZVEZDA in Russian 2 Aug 87 second edition p 2

[Interview with Maj Gen S. Kostromin, chief engineer for the Technical Directorate for Capital Construction of the USSR Ministry of Defense, by Capt I. Ivanyuk, KRASNAYA ZVEZDA correspondent, under the rubric "For Construction--a Modern Technological Level": "The Foundation Has Been Laid"; first two paragraphs are KRASNAYA ZVEZDA introduction]

[Text] During the year KRASNAYA ZVEZDA has carried a column under the rubric "The Construction Complex: What Should It Be Like?" in which specialists in the military construction units have discussed ways to accomplish the tasks set forth at the 27th CPSU Congress. The attention has been focused on further industrializing construction, improving the project estimate work and other measures which could sharply increase labor productivity and improve the quality of the work.

What real advances have recently been made in the work of the military construction organizations? What is being implemented? Major General S. Kostromin, chief engineer for the Technical Directorate for Capital Construction of the USSR Ministry of Defense, answers questions posed by Captain I. Ivanyuk, KRASNAYA ZVEZDA correspondent.

[Question] Stanislav Sergeyevich, the discussion in the newspaper has touched upon numerous questions, but the readers have expressed perhaps the greatest interest in the articles having to do with the use in construction of reinforced concrete modules brought to a high degree of completion at the plant. These technological ideas brought a response from a broad range of specialists, from the young officer prepared to begin implementing them to the patent specialist offering to help the authors of new developments to fill out the applications for patents on their inventions. This is no doubt easily explainable from the purely psychological standpoint: the imagination pictures apartment buildings assembled by a powerful crane literally out of entire rooms manufactured at construction plants. What has actually been done to put into practice and disseminate the modular construction methods?

[Answer] That's the way it goes: the dream gets ahead of the reality. In principle, the matter of shifting the labor-intensive construction operations to the plant is not something new, and for us it is one of the most important trends in the work. A great deal is being done in this respect. The tone is being set by

the military construction organization headed by Major General V. Grigorkin and the design organizations headed by Major General N. Pershin and Lieutenant Colonels V. Kolesnikov and V. Volkovskiy.

With respect to the planned dissemination of the modular construction method, the Blok special comprehensive program approved by the deputy USSR minister of defense for construction and billeting of troops went into effect not long ago. It calls for enlarging the output of modular components by 1990, mainly by reconstructing five existing industrial enterprises. In addition to the transformer substations already placed into operation, we are expanding the construction of general military buildings with modules: barracks, headquarters, training buildings, messhalls and medical aid posts. The Main Construction Industry Directorate and the Main Military Construction Directorate of the USSR Ministry of Defense are becoming involved in the work we have started.

The construction of industrial and special buildings out of frame modules is one of the sections in the special Blok program. This technology has already been used for building several complex technological installations. Labor outlays at the construction sites and the amount of time required to assemble the enclosures were greatly reduced in the process. This will make it possible this year to increase prefabricated construction by 3 percent and to increase the construction of production buildings of modular components by 20 percent over the 1986 level.

[Question] But will the modules and frame modules, which were actually developed by different groups of designers, not in time begin competing with each other? After all, as far as I know, we already have designs for general military buildings and social facilities made of frame modules. There is no question that they can be erected very rapidly and in many cases can even alleviate problems in the social area. But will it not be too expensive to achieve this "satisfaction" by building ordinary buildings of such complex, high-strength components? The possibility is not ruled out that in some places this could even compromise the progressive method.

[Answer] For one thing, let me say at the outset that there will be no "competition." The experience we have makes it possible to precisely delineate the areas of application of the components. Frame modules are used in industry and special construction, while the regular modules are used for general military construction and in the social area.

Compared with the number of industrial and special buildings and installations, there are few plans for general military buildings constructed of frame modules, and these will be built on an experimental basis. This is to some degree forced upon us by the need to use capacities of the enterprise headed by Colonel M. Chernyy with maximum effectiveness in 1988. Naturally, these experimental projects and the social, cultural and consumer service facilities will only be built where there is an urgent need right now. In addition, it is planned to use different, lighter modules for these projects, which contain less reinforcement steel and are therefore more economical.

[Question] The Blok program covers a broad range of specific matters and has been worked out in breadth and in depth, as they say. But is it enough? We

know that many specialists regard the modular construction system as a powerful tool for overall acceleration in the construction complex, as a reserve for greatly enhancing labor productivity.

[Answer] The modular system may in time assume a larger place in construction, of course, but I still do not believe that it can take the place of the traditional construction designs. It would be wrong to contrast it to other systems and assume that only it can be successful. Incidentally, it is used for only 2.5 percent of the total construction in the national economy. It is doubtful that this method will supplant the others in military construction. After all, many problems have still not been resolved. It is expensive to transport the modular components: "Empty space" has to be hauled long distances, doubling the cost of the components. There are not enough of the powerful cranes for installing the modules. Problems having to do with the timely "filling-in" of the engineer systems have not been worked out. The modules still have significant structural deficiencies. I could go on with the list.

Modular construction can provide the maximum effect only when the components are delivered from the enterprise to the construction site by motor transport within a radius of no more than 200 kilometers. It is perfectly apparent that these enterprises and industrial shops cannot be built overnight for the construction areas. Suggestions now being made that large-scale conversion to modular construction be accomplished during this five-year period are therefore premature. I would stress once more the fact that in addition to the lack of industrial facilities for this, the components themselves and the technology for manufacturing them have not yet been brought up to the level required for regular production. The present programs are based on making maximum use of existing production capacities in the construction industry and developing within reasonable limits operations for producing modules.

Now a few words about increasing labor productivity. The modular method is certainly not the only way to achieve this. Further development of the installation of general industrial and technological equipment occupies an important place in our plans, for example. Construction and installation organizations of the USSR Ministry of Defense have already developed and placed into use many interesting design and technical solutions. A great deal of work is being done in this area by the teams of the planning organizations headed by Major General S. Voinov and Colonel V. Kolesnikov. Enterprises of the Main Construction Industry Directorate, which is headed by Major General A. Borovtsev, has mastered the production of modular boiler rooms, pumping stations, purification facilities, cooling towers, and production equipment cooling units. A project receives not a set of equipment, but practically a finished item tested on a special stand at the plant. This year the production of these modular industrial systems will be increased by 15 percent over the 1986 level.

There are also other directions for enhancing production effectiveness. In its capital construction the USSR Ministry of Defense has five-year and annual plans for raising the technological level of production. Among other things, it is planned to increase prefabrication to 85 percent in housing construction, 48 percent in general military construction, and 50 percent in industrial and special construction by 1990. These and other measures will make it possible to increase labor productivity by up to 15 percent at military construction sites. Their successful implementation will make it possible to reduce the amount of time required to erect buildings and installations and to resolve a number of pressing problems in the area of providing good conditions for the troops.

REAR SERVICES, DEFENSE INDUSTRY

DEFENSE MINISTRY, GLAVPU ON CONSTRUCTION PLAN FULFILLMENT

18010225b Moscow KRASNAYA ZVEZDA in Russian 8 Aug 87 second edition p 1

[Report under the rubric "In the USSR Ministry of Defense and the Main Political Directorate of the Soviet Army and Navy": "For the Five-Year Plan--Shock Labor"]

[Text] Having initiated on a broad basis socialist competition with the slogan "We Shall Fulfill Decisions of the 27th CPSU Congress and Commemorate the 70th Anniversary of Great October With Highly Productive Labor!" the workers at military sites and industrial enterprises, in planning and research organizations, billeting agencies and establishments of the USSR Ministry of Defense have persistently implemented the directions set forth at the 27th CPSU Congress with respect to reducing construction periods, enhancing labor productivity and improving the work, conserving materials, fuel and energy, and strengthening discipline at all levels. The CPSU Central Committee's appeal to the Soviet people in connection with the 70th anniversary of the Great October Socialist Revolution evoked a new outpouring of activeness at the military construction sites. Socialist commitments were revised and more intense commitments were accepted in response to the party's appeal. They involved completing projects on time, enhancing labor productivity, conserving all types of resources, improving construction quality and strengthening military and labor discipline. Considerably more attention is now being given to the construction of social facilities. The goals set for increasing labor productivity have been reached. The planning and research program has been completed.

Good production indices have been achieved by the collectives headed by Comrades A. Bitukov, M. Gromenko, V. Dukhin, F. Kapura, S. Kartsidze, A. Navasardov and A. Novosadov, and the enterprises headed by Comrades N. Gorodbin, V. Kutsyuruba, N. Miroshnichenko, V. Nazarenko, L. Nekrasov, V. Sidorov and L. Smirnov. Military construction workers of the Moscow, Carpathian and North Caucasus military districts have worked hard. The teams headed by Comrades S. Voynov, V. Kolesnikov and N. Pershin have been judged the winners in the socialist competition among the planning organizations, and the collectives directed by Comrades V. Vorobyev, M. Kochetygov and V. Ponomarev have been judged the best among the billeting organizations and enterprises.

The restructuring is proceeding slowly in capital construction, however. A number of collectives and their directors were unprepared to work under the new conditions. Construction workers of the Transcaucasus, Baltic, Volga and Siberian

military districts, the Pacific Fleet and the organizations headed by Comrades I. Akhmedov, V. Bozhko, N. Gurov, V. Zhutkin, Ya. Tauber, L. Tyurikhov, G. Filippov and A. Kharchenko did not meet their targets for or fulfill their socialist commitments for most of the indices for the first half of 1987. Construction workers of the Kiev, Odessa and Far East military districts and the collectives headed by Comrades V. Vylgin, F. Zheberlyayev, V. Katunin, A. Kosovan, V. Krichevskiy, V. Kudryavtsev, V. Morozov, V. Svirskiy and V. Yashchenko did not fulfill the plan in certain respects. Most of the construction organizations did not achieve the start-up of production facilities included on the itemized lists. The construction directorates of the Baltic and Black Sea fleets did not meet their targets for the release of housing and social facilities.

The leaders and the economic services in those construction organizations have not yet adequately mastered the methods for working under the new conditions and have not overcome the urge to produce a plan at any cost. They are not making full use of existing possibilities for improving the organization of production and for making more effective use of construction machinery and motor transport. They are too slow in taking steps to improve the construction and installation work, and too little is being done to adopt technological innovations. The campaign to strengthen military and labor discipline and to create safe working conditions in construction is not being carried out successfully everywhere.

The military construction workers are faced with difficult and important tasks in the anniversary year. These demand that the chiefs of the construction projects, the commanders, political organs, engineers and technicians, party, trade union and Komsomol organizations, in accordance with the directions set forth at the 27th party congress and at the January and June 1987 plenums of the CPSU Central Committee, take immediate steps toward the practical implementation of the fundamental decisions adopted by the party and the government to improve the economic system and management and to make the construction process more effective.

The existing management praxis in each organization needs to be assessed more demandingly and self-critically and tested for conformity to the new demands. We need to switch from administrative to primarily economic methods of management at all levels and to accomplish the long-term tasks involved in developing the construction industry and in mastering new equipment and progressive technology on this basis. We need to adopt the collective contract, which organically combines the principle of economic accountability with socialist management. We need to strive persistently to enhance labor productivity and to introduce the achievements of scientific and technological progress, advanced components and materials into the practical construction process on a broad basis.

We must take advantage of the labor enthusiasm evoked by preparations for the 70th anniversary of October to mobilize the military and labor collectives and every worker to perform highly productive labor. The fate of the construction program for 1987 depends entirely upon the conscientiousness, awareness, discipline and initiative of each individual at his work station.

The USSR Ministry of Defense, the Main Political Directorate of the Soviet Army and Navy and the Central Committee of the Trade Union of Workers in Construction

and the Construction Materials Industry express their firm confidence that personnel of the military construction units, construction, planning and research organizations, industrial enterprises and billeting agencies will do everything possible to incorporate the energy of the party's plans into the energy of practical action and to successfully fulfill plans and socialist commitments for the anniversary year and the 12th Five-Year Plan as a whole.

11499

CHANGES IN DEFENSE INDUSTRIAL MINISTRIES

Minister Afanasyev Retires

18010225c Moscow VEDOMOSTI VERKHOVNOGO SOVETA SOYUZA SOVETSKIKH SOTSIALISTI-
CHESKIKH RESPUBLIK in Russian No 20 (2415), 22 Jul 87 p 554

[Ukase of Presidium of USSR Supreme Soviet "On Relieving Comrade S.A. Afanasyev
of His Duties as Minister of Heavy and Transport Machine Building of the USSR"]

[Text] The Presidium of the USSR Supreme Soviet decrees:

that Comrade Sergey Aleksandrovich Afanasyev be relieved of his duties as Min-
ister of Heavy and Transport Machine Building of the USSR due to his retirement
with a pension.

Moscow, The Kremlin, 18 July 1987
No. 7392-XI

A. Gromyko, Chairman of the Presidium of
the USSR Supreme Soviet
T. Menteshashvili, Secretary of the Pre-
sidium of the USSR Supreme Soviet

New Ministry Formed

18010225c Moscow VEDOMOSTI VERKHOVNOGO SOVETA SOYUZA SOVETSKIKH SOTSIALISTI-
CHESKIKH RESPUBLIK in Russian No 20 (2415), 22 Jul 87 p 555

[Ukase of the Presidium of the USSR Supreme Soviet "On the Formation of the All-
Union Ministry of Heavy, Power and Transport Machine Building of the USSR"]

Text] The Presidium of the USSR Supreme Soviet decrees:

that the All-Union Ministry of Heavy, Power and Transport Machine Building of
the USSR Be Formed Out of the Ministry of Heavy and Transport Machine Building
of the USSR and the Ministry of Power Machine Building of the USSR.

Moscow, The Kremlin, 20 July 1987
No. 7396-XI

A. Gromyko, Chairman of the Presidium of
the USSR Supreme Soviet
T. Menteshashvili, Secretary of the Pre-
sidium of the USSR Supreme Soviet

Velichko To Head New Ministry

18010225c Moscow VEDOMOSTI VERKHOVNOGO SOVETA SOYUZA SOVETSKIKH SOTSIALISTICHESKIKH RESPUBLIK in Russian No 20 (2415), 22 Jul 87 p 556

[Ukase of the Presidium of the USSR Supreme Soviet "On the Appointment of Comrade V.M. Velichko as Minister of Heavy, Power and Transport Machine Building of the USSR"]

[Text] The Presidium of the USSR Supreme Soviet decrees:

that Comrade Vladimir Makarovich Velichko be appointed Minister of Heavy, Power and Transport Machine Building of the USSR.

Moscow, The Kremlin, 20 July 1987
No. 7396-XI

A. Gromyko, Chairman of the Presidium of
the USSR Supreme Soviet
T. Menteshashvili, Secretary of the Presidium of the USSR Supreme Soviet

11499

SWEDISH PRESS COVERAGE OF SUPPOSED SOVIET SUB THREAT NOTED

Moscow KRASNAYA ZVEZDA in Russian 10 Jul 87 p 3

[Article by N. Bukolov: "Who Needs It?"

[Text] When warships scurry in Swedish skerries in search of foreign submarines and waves rise up on which a deafened fish rocks from the powerful explosions of depth bombs, one can sympathize with the Swedish fishermen and the environmental protection organs. And the fact that submarines cannot be discovered, isn't this simply the case that they simply are not in local waters?

But when on the pages of the press local politicians permit themselves provocative fabrications in the spirit that, they say, the submarines are sent by the Soviet Union to "prepare the occupation of Sweden," one wants to express sympathy for the Swedish readers. They are trying to fool them, impose harmful thoughts on them, and sow mistrust regarding a neighboring country. It is just this which was undertaken on the pages of the newspaper (SVENSKA DAGBLADET) by a member of the board of the bourgeois people's party, (Ulle Vestberg).

The submarines, he asserts without any grounds, are Soviet. The author draws a weird picture of how the USSR is trying to prepare an invasion of Sweden and create on its territory a corridor for reaching the Norwegian coast of the North Atlantic. He crowns these fabrications with the truly absurd, blasphemous assertion alleging that now the Soviet Union "has worked out more detailed and specific preparations for the invasion of Sweden than even the German general staff in 1940."

Such libel will hardly help the strengthening of Swedish security. And, of course, in no way can it further the development of normal relations between Sweden and the Soviet Union which has declared many times that it is striving to build them in a spirit of mutual respect, good neighborliness, and collaboration, respecting territorial integrity and Swedish sovereignty.

Perplexity is caused because a leading Swedish newspaper which also claims respectability and objectivity offers its pages for such anti-Soviet attacks.

6367

CSO: 18010217

EXAMINATION OF DESIGN FEATURES OF U.S. SUBMARINES

18010227b Moscow VOYENNNYYE ZNANIYA in Russian No 2, Feb 86 pp 30, 33

[Article by Capt 1st Rank S. Mikhaylov under the rubric "Talks With Draftees":
"The Arrangement of a Submarine"]

[Text] In order to sail safely underwater at various depths a submarine must have a sealed, watertight hull with great lateral and longitudinal strength giving the vessel good navigating qualities. In most nations in the West submarine designs consist of two parts: a pressure hull and an outer hull.

The pressure hull is the watertight part of the hull, which is capable of withstanding the external water pressure. The latter can be enormous. There is 400 tons of pressure on each square meter of hull surface at a depth of 400 meters, for example. It is therefore made of special, high-strength material--40mm thick on American nuclear-powered submarines, for example. This gives U.S. submarines an operating depth (the greatest depth at which a submarine can remain for a prolonged period of time, which is 70-90 percent of the maximum depth) of 400 meters or more.

How does the pressure hull have to be designed in order to withstand the enormous pressure of the water?

We know that circular is the best cross-sectional shape for vessels which operate under great pressure. For this reason an attempt is made to shape the pressure hull as close as possible to circular. Lengthwise it is cigar-shaped and consists of a framework and plating.

In shipbuilding the framework is a system of longitudinal and lateral elements (beams) made of structured steel and steel plate connected together and forming a rigid skeleton. The framework includes the keel, stringers, ribs and girders.

The keel is the main element imparting longitudinal strength to the hull. It runs along the centerline of the submarine at the very lowest part on the bottom and may be vertical, flat or channeled. Its design depends upon the class of ship. Channeled keels are mostly used on submarines.

A stringer is a beam made of sheet metal. Stringers are arranged along the bottom, the side or the deck and are the boat's main longitudinal elements.

Ribs (shpangout) are the main elements in the framework which give the hull its lateral strength. Ribs are beams of structured and sheet metal located along the sides and the bottom of the hull. They are also called the ship's ribs (rebro).

Finally, there are girders, which are lateral elements in the framework supporting the deck.

In order to make the pressure hull unsinkable and increase the survivability of submarines the former is partitioned with lateral, watertight bulkheads into separate compartments, the number depending upon the length, the class and the purpose of the submarine. One of the middle compartments, in which all of the main control instruments are located, is called the control room. The main control station (GKP) is located there. The submarine is controlled from there, and the rudder control stations, the submersion and surfacing system, the chart room and the radar and sonar stations are housed there.

The conning tower is one component of the pressure hull. It is located above the control room. Its sides are made of sheet metal and are just as strong as the submarine hull itself. The tower is covered with a watertight cowling, a superstructure, to make it more streamlined. It contains the periscopes, the radar antennas, the RDP well (an arrangement providing for submerged diesel operation) and ventilation shafts. The conning tower has access hatches. The lids close downward (from the outside) and are held tight by the pressure of the water when the submarine is submerged.

In order to give the submarine a better navigating shape and to provide a place for the tanks, systems and equipment, the pressure hull is enclosed in a sort of sheath, a second hull known as the outer hull. This is what gives the submarine the image to which we are accustomed. This hull is waterproof in some places and is made of thinner metal sheets. The main and auxiliary ballast tanks, which make it possible for the submarine to submerge and surface, are located in the waterproof section.

The framework of the outer hull of most foreign submarines is a rigid skeleton consisting of ribs, transverse, watertight bulkheads and stringers. The superstructure is in the top part of the outer hull and is streamlined. It contains various systems and equipment. The stern section contains the 'A' brackets, a rudder and the stern hydroplanes. The bow hydroplanes are ordinarily located in the forward bridge superstructure. They are also located on the conning tower on nuclear-powered missile submarines.

As I have already mentioned, there are various ballast tanks between the outer and the pressure hull: main and auxiliary (compensating and trim) ballast tanks. Special-purpose tanks are also located there: quick-diving tanks, fuel, oil and fresh-water tanks, and compensating tanks (for balancing the submarine's weight when missiles or torpedoes are fired). These tanks are ordinarily inside the pressure hull.

The main ballast tanks (TsGB) on foreign submarines are located between the hulls. They have Kingston valves on the bottom for filling them with seawater. There

are ventilation valves in the upper part of the main ballast tanks. When these are opened, the air is forced out and water fills the tanks. The submarine submerges. Compressed air is fed into the main ballast tanks for surfacing, which forces the water out through the open Kingston valves.

Like any other ship submarines have anchoring and mooring devices. There are life-buoys on the deck, which surface in case of an accident and indicate the site where the submarine has gone down.

Not all submarines today have an outer hull completely enveloping the pressure hull. There are single-hull and saddle-tank submarines. Single-hull submarines have only a pressure hull with light extremities, conning tower superstructures and other casings.

The saddle-tank submarines have an outer hull on both sides along the entire length of the pressure hull, but not covering its entire perimeter (the bottom part is not covered).

I have already said that all of the space in the pressure hull is partitioned into compartments. In the bow section, the so-called torpedo room, contains the torpedo tubes and racks of reload torpedoes. In addition to their purpose, these tubes can be used by the submariners in an emergency for exiting the submarine.

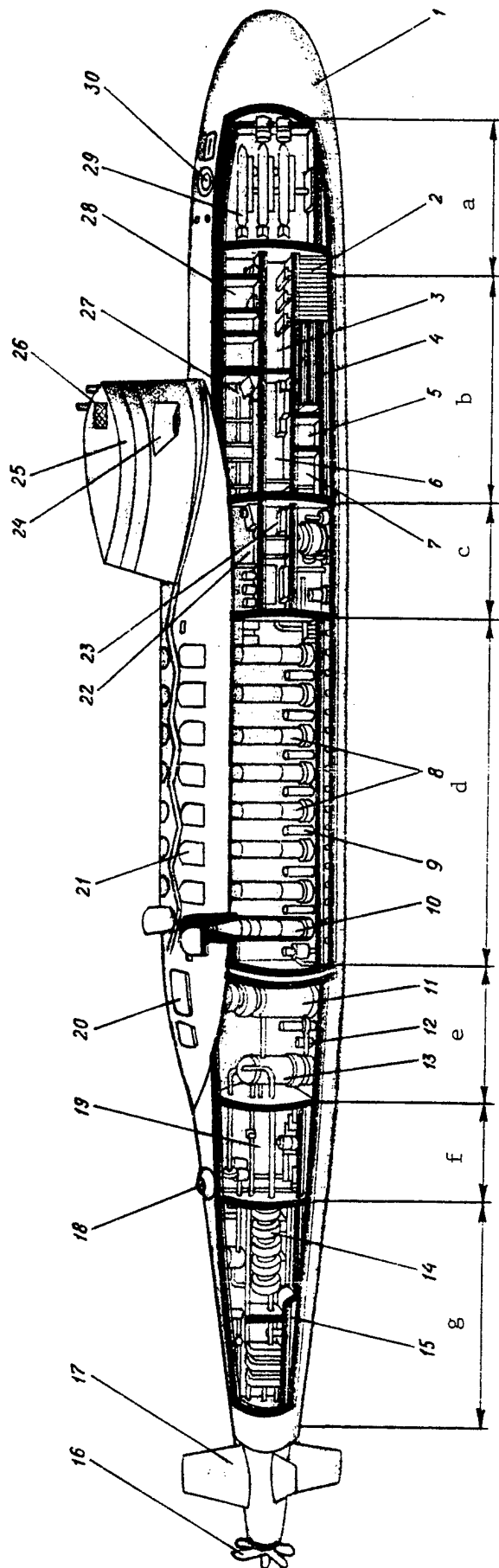
The engine room houses the powerful, multi-cylinder main engines which turn the screw propellers when the submarine is on the surface or at periscope depth. When the submarine is sailing at periscope depth it is possible to recharge the storage batteries by means of the RDP. In this device air is fed to the operating diesel through a small float valve and a long pipe. Only a part of the pipe, the air-feed trunk and the float valve, is on the surface. It cuts off the air feed the instant it is covered by water.

The engine room houses electric motors which propel the submarine under water. Storage batteries located in holds beneath the deck take up a considerable amount of space on diesel submarines. These are ebonite tanks filled with a special electrolytic compound.

Nuclear-powered submarines have a special compartment housing a nuclear reactor, which makes it possible to increase many aspects of the submarine's capabilities many times over: depth, speed, range and sailing time. Nuclear power permits submarines to remain underwater for practically an unlimited time. They can make long cruises to any spot in the World Ocean at great speed, approach and attack high-speed surface ships. Nuclear-powered submarines do not have to surface because of a shortage of air, fresh water or fuel, or because the reserves in the storage batteries have been exhausted. They autonomously generate as much air and fresh water as they need.

Missile submarines, the largest and most powerful of the submarines, have a compartment called the missile bay. The number of missiles varies according to the displacement and dimensions of the submarine. The American Ohio-class nuclear-powered missile submarines carry 24 Trident ballistic missiles with a range of 7,400 kilometers, for example.

Arrangement of Space and Machinery on Nuclear-Powered Missile Submarine (G. Washington class)



Key:

- | | | |
|-------------------------------------|--|---------------------------------------|
| 1. Sonar dome | 13. Steam generator | 25. Conning tower superstructure |
| 2. Tank | 14. Steam turbine | 26. Fore bridge |
| 3. Crew's mess | 15. Reduction gear | 28. Officers' quarters |
| 4. Storage batteries | 16. Propeller | 29. Reload torpedoes |
| 5, 7. Stores | 17. Fin assembly | 30. Torpedo hatch |
| 6, 23. Missile launch control posts | 18. Stern hatch | a. Forward torpedo tubes |
| 8. Missile tubes | 19. Auxiliary machinery | b. Crew quarters and battery space |
| 9. Compressed air cylinders | 20. Hatch above removable plate of pressure hull | c. Missile launch control compartment |
| 10. Missile inside tube | 21. Solid tube covers (opened) | d. Missile bay |
| 11. Nuclear reactor | 22, 27. Control rooms | e. Auxiliary engine compartment |
| 12. Circulating pump | 24. Hydroplanes | f. Engine room |

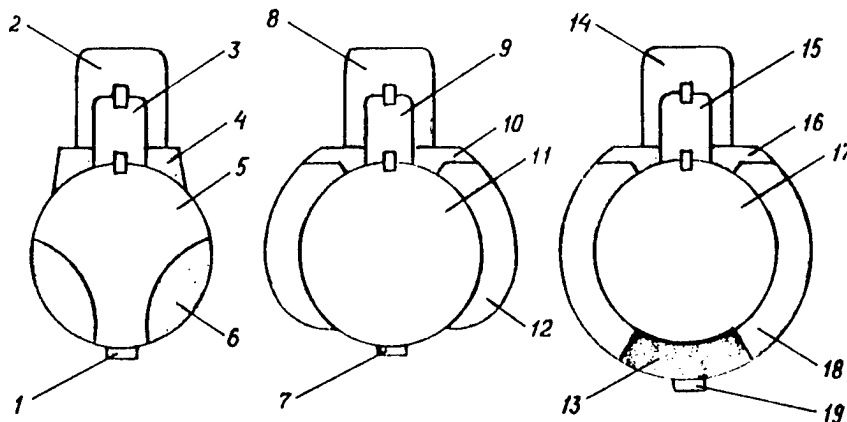
On U.S. missile submarines the Tridents are arranged in two rows of vertical tubes running along the missile bay. The submarine descends to a depth of 30 meters prior to launching. The pressure inside the launching tube is made the same as the outside pressure and the hatch lid is opened. The missile is now separated from the water by a thin diaphragm. The missile is ejected from the water by a steam-and-gas mixture, takes off at 15-20 meters above the water and, after the first-stage engine switches on, speeds toward the target.

The missile bay contains pre-launch preparation equipment, which automatically checks out the missiles during their preparation for launching, various computing devices and electronic computers.

The work performed by the submariners is difficult and involves a great deal of responsibility. They are at sea for many weeks or months. Living conditions on the submarines are therefore an extremely important factor.

No kind of weather poses a problem for Soviet nuclear-powered submarines, nor does the season or time of day mean anything to them. An abundance of soft daylight at the battle stations, in the compartments and corridors, 2- and 4-man cabins finished in polished wood, air conditioners, showers, bread baked on the submarine, fresh produce--this is what modern Soviet submarines are like. The nature of the submariner's work has also changed. The operator's work station is comfortable and provides for complete freedom of movement. The control elements--wheels, levers, buttons and pedals--are concentrated in a specific work area, are easily accessible and do not require a large effort to operate. Many of the monitoring and control functions are automated. All of this makes it possible for the crew to perform the combat missions in good hygienic and cultural conditions.

Submarine Hull Designs



Key: 1, 7, 19. Keel
 2, 8, 14. Conning tower
 3, 9, 15. Conning tower superstructure
 4, 10, 16. Superstructure and bridge
 5, 11, 17. Pressure hull
 6, 12, 18. Ballast tanks
 13. External fuel tanks

COPYRIGHT: "Voyennyye znaniya", 1986

11499

KRASNAYA ZVEZDA REVIEWS WESTERN DEVELOPMENT OF RPV'S

18010227a Moscow KRASNAYA ZVEZDA in Russian 29 Jul 87 second edition p 3

[Article by Eng Yu. Boyko under the rubric "Technical Military Review": "'Aerial Robots,' or, Why Does the Pentagon Need Unmanned Aircraft?"]

[Text] The ever increasing cost of manned reconnaissance planes and helicopters and their vulnerability to enemy air defense facilities were the main factors which forced military circles of the capitalist nations to begin in the '70s to devote the most serious attention to unmanned, remote-controlled aircraft (DPLA), to "aerial robots."

Foreign military experts stress the fact that tactical and strategic reconnaissance will be the main missions of the remote-controlled aircraft. They can issue target indications and adjust fire, assess the effects of artillery shelling or the bombing of enemy positions, provide for the relaying of command and control signals on especially high frequencies and for radioelectronic counteraction, patrol carrying sensors of chemical, biological and nuclear danger, and so forth.

According to the magazine DEFENSE ELECTRONICS systems have now been developed for transmitting reconnaissance data promptly from unmanned aircraft to ground command and control posts. One such system, employed on the Israeli Scout remote-controlled aircraft and used in combat operations in Lebanon in the summer of 1982, made it possible to detect air defense facilities by transmitting television images to ground command posts in the daytime.

The magazine INTERAVIA stresses the fact that during the war in Vietnam American remote-controlled aircraft flew more than 3,400 sorties with losses amounting to fewer than 10 percent.

Foreign military experts believe that remote-controlled aircraft can be used most effectively for monitoring targets in the zone along the front (less than 50 kilometers from the frontline), where losses of conventional, manned aircraft can be significant.

The remote-controlled aircraft are of various designs. There are two (main) types, however: plane and helicopter. Piston, turbojet or rotary (Wankel) 10-30 kilowatt engines are used as the power units. The foreign experts state

that this is perfectly adequate power. The slow speed of the remote-controlled aircraft reduces their survivability, of course, they say, but it is nonetheless not an easy task for the enemy to combat them. This is primarily because it is difficult to detect them with infrared, radar or acoustic observation facilities.

The plane-type remote-controlled aircraft are ordinarily launched with pneumatic launchers or rato units mounted on the frame of a motor vehicle or an armored personnel carrier. They land on small dirt strips or by means of landing nets which the remote-controlled aircraft snag with a brake skid. Some of the aircraft are equipped with a parachute recovery system. One hears the opinion that as technology develops it will become increasingly less expensive to produce reconnaissance equipment (television and still-photography cameras and various types of sensors) and engines for the remote-controlled aircraft. The experts underscore the fact that in the near future it may no longer even pay to design aircraft recovery systems but will be more expedient to switch to expendable designs.

This is for the future. But what do the forces of the main capitalist states have right now?

According to the magazine AVIATION WEEK the U.S. Lockheed company has developed a remote-controlled aircraft of the Aquila class, one of which, together with the reconnaissance equipment, will cost 800,000 dollars. It is planned to build 1,000 of the aircraft.

The technical features of the Aquila are the following: wing span, 3.9 meters; takeoff weight, 100 kilograms; payload weight, 30 kilograms. A 20 kilowatt piston engine provides for a minimum flight speed of 90 kilometers per hour and a maximum speed of 200. The aircraft has an operating range of 450 kilometers.

The Aquila is equipped with a television camera stabilized on three axes and a laser range-finder/target indicator to provide for firing Copperhead-2 projectiles and missiles with a laser guidance system. The foreign press has reported on the testing of a unit outfitted with a Fleer television system and radar which operates in the millimeter range. This makes it possible to conduct reconnaissance at night.

The Sky Eye is similar in design and flight characteristics. It is additionally equipped with a radar responder for tracking aircraft and a line for transmitting video information to control posts up to 120 kilometers away. It has been reported in the foreign press that American specialists have used the Sky Eye in El Salvador and Nicaragua.

According to the magazine AEROSPACE DAILY the Boeing company has built a remote-controlled aircraft named the Brave 200.

This series of unmanned aircraft includes the Brave 3000 designed for conducting radioelectronic counteraction against armored targets. The device has a flight weight of 238 kilograms and a flight range of 500 kilometers. The turbojet engine provides for a cruising speed of 700 kilometers per hour. The remote-controlled aircraft is launched from a missile container, with the wing and tail

unit opening up automatically. It carries a digital automatic pilot and a programmed microprocessor.

The foreign press notes that the Aerodyne Systems company also specializes in the production of unmanned aircraft. The designers produced one such aircraft out of the QH-50D (Gyrodyne) helicopter. This unmanned aircraft weighs 1,180 kilograms and carries a payload (not including fuel) of 400 kilograms. It can hover over the earth at an altitude of 3,350 meters. The press stresses the fact that this will be an aircraft for round-the-clock duty.

Judging from reports in the press U.S. military specialists place particular hopes on the plane-type unmanned aircraft with solar batteries mounted on the wings (see photograph on left [photographs not reproduced]). Carrying up to 110 kilograms of reconnaissance equipment, it can fly at an altitude of 20,000 meters for several weeks. The electric engine and propeller are run by the solar batteries in the daytime and by chemical fuel elements at night.

The magazine FLIGHT INTERNATIONAL has reported that Grumman Aerospace has developed a remote-controlled aircraft designated the D754. This VTOL aircraft is equipped with radar sets for detecting ground targets. They have a range of up to 185 kilometers. The design has a variable-shape wing. Takeoff weight is 4,440 kilograms, and the payload weighs 680 kilograms. With its fuel reserve it can remain in the air 14 hours.

The foreign press has reported that the U.S. is testing so-called aerostatic, unmanned aircraft which can remain in the air up to 2 months and remote-controlled aircraft created out of motor-driven deltaplanes (motodeltaplan).

Specialists in Canada, Italy, the FRG and Great Britain are hard at work on remote-controlled aircraft. The helicopter-type Argus aircraft was tested not long ago in the FRG, for example (see photograph on left). It has 3.2-meter counter-rotating rotors. Its 30-kilowatt engine provides for a flight speed of 140 kilometers per hour, and it can fly for 2 hours.

In Great Britain remote-controlled aircraft are being built out of a glider and equipped with television and still-photography equipment. Also being created there is the unmanned Sprite helicopter capable of flying at altitudes of up to 3,000 meters and remaining in the air 2.5 hours.

According to the magazine AVIATION WEEK remote-controlled aircraft are being intensively designed and operated in Israel. The foreign press notes that there are special reasons for this: the need to constantly monitor the Palestinian camps or rival groups in Lebanon from the air, as well as to conduct reconnaissance of Syria's fortified border areas.

In 1985, the magazine AVIATION WEEK reports, two Israeli companies which produced the unmanned Scout and Mastiff aircraft joined forces to speed up the designing of a new generation of the Pioneer. At that time, the magazine states, 200 Scouts and Mastiffs had flown more than 5,000 hours in nations on four continents. The U.S. has purchased the Mastiff remote-controlled aircraft and is employing it both from landing vessels and from wheeled and tracked land carriers.

Both of these aircraft are of the plane-type design and have a compartment with a television mounted below, the wide-angle lens of which makes 360-degree observation possible. Piston engines with pusher propellers provide for a minimum flight speed of 75 kilometers per hour and a maximum of 165. They can remain in the air 6-7 hours and have a ceiling of 3,500 meters.

The new Pioneer aircraft will have increased takeoff weight. It will be able to remain in the air up to 9 hours, and its ceiling will be raised to 4,500 meters. The Pioneer carries new reconnaissance equipment. Receivers for tracking its flight and assessing its information will be mounted on tanks and armored personnel carriers.

It has been reported in the press that U.S. military experts are clearly interested in the development of the Pioneer. Among other things, the American company AAI has built in cooperation with one of the Israeli companies a laboratory for the high-strength component materials used in remote-controlled aircraft. U.S. Air Force operators are presently learning on special simulators in Israel how to control this aircraft. The press has reported that the U.S. Air Force has decided to acquire the Pioneer and has conducted test-launchings of the aircraft from the cruiser Iowa. Although they were unsuccessful (four aircraft were lost at sea), no one is planning to give up the venture.

Furthermore, when the oversea strategists discuss questions pertaining to the employment of remote-controlled aircraft, they unanimously declare that this type of reconnaissance equipment is the best possible for implementing the principle of the "strike in depth" worked out by the NATO staff and for keeping track of enemy troops from the site of their preliminary deployment to their entry into battle and destroying them when they are most vulnerable.

11499

U.S. NAVAL PRESENCE IN PERSIAN GULF SAID TO INCREASE TENSION

Moscow KRASNAYA ZVEZDA in Russian 9 Jul 87 p 3

[Article by V. Vinogradov: "It Smells of Powder"]

[Text] Reports arriving from the region of the Persian Gulf and the Near East tell of the further aggravation of the situation in these regions which are located rather closely to one another. The Iran-Iraq War which has lasted for seven years and the Arab-Israeli conflict of many years may take a turn toward new complications at any moment. Typically, in both cases the matter is aggravated by an American military presence, and in the Persian Gulf even the armed interference of the United States is fully possible.

Under the pretext of "ensuring freedom of navigation," Washington is accomplishing the intensified buildup of military might in the region of the Persian Gulf. However, and even the American press writes about this (in particular the newspaper BALTIMORE SUN), these preparations are more suitable for preparation for military operations than for protective measures. At the approach to the Persian Gulf is a regular detachment of the American Navy consisting of the cruisers "Worden" and "Reeves" and the frigate "Jarrett." With their arrival, the newspaper stresses, eight U.S. combat ships in addition to support ships will be in the waters of the gulf. In addition to this "armored fist," the Pentagon intends to keep at the Strait of Hormuz the cruiser "Ticonderoga" with escort ships and, in the northwestern part of the Indian Ocean--a carrier group. The battleship "Missouri" will be sent to the Persian Gulf.

It goes without saying that such a concentration of American naval might on the approaches to the region where the flame of military operations is blazing in no way furthers the normalization of the situation there. All the more since at the same time the United States is undertaking steps directed toward an aggravation of the situation in the Near East. There, as usual, it is allotting the role of "ringleader" to its "strategic ally", Israel, which made noticeably more active armed sorties against Lebanon. It has already long been noted that the presence of a large U.S. naval force in the Eastern Mediterranean always furthers a growth in Tel Aviv's aggressiveness in relation to its Arab neighbors. Nor is the present instance an exception. The United States concentrated there a large part of its Sixth Fleet and, evidently, inspired by this Israel accomplishes armed provocations against Lebanon almost daily.

At the same time, in the American as well as in the Israeli press articles again appeared concerning the role which Israel could play in the implementation of American plans in the Persian Gulf. Rumors are again exaggerated that "in case of necessity" the Israeli army could "distract" attention to itself, undertaking for this purpose a large-scale military operation in the Near East which, they say, would "untie the hands" of the Pentagon in the Persian Gulf. And someone in Tel Aviv goes even farther, declaring that it will "cost the Israeli army nothing" to reach the waters of the Persian Gulf.

In this connection, one cannot fail to be alerted by a visit to the United States which was just made by the Israeli defense minister, Rabin. For it has already happened many times that after a trip across the ocean by a highly-placed Tel Aviv visitor Israel accomplished an attack against some Arab country. All the more since now even Washington itself is nurturing aggressive plans in relation to the Persian Gulf, building up forces for possible intervention.

All this shows how much the situation has become aggravated in the Middle and Near East and stresses the necessity for the taking of effective steps to prevent the dangerous development of events. As is indicated in the declaration of the Soviet government, urgent and effective measures are needed which would assist in a radical reduction in tension in the zone of the Persian Gulf and the most rapid conclusion of the protracted Iran-Iraq War.

Such steps should also be taken in the Near East. All the more since the idea of convening an international conference on the Near Eastern problem with the participation of all interested countries including the Palestine Liberation Organization is finding an ever larger number of supporters.

These explosive regions should stop smelling of powder.

6367

CSO: 18010217

U.S. ARMS AID TO AFGHANIS LINKED TO ARMS AID TO PAKISTAN

Moscow KRASNAYA ZVEZDA in Russian 16 Jul 87 p 3

[Article by V. Vinogradov: "In the Role of Accomplice"]

[Text] This commentary is devoted to the role which the United States allots to Pakistan in its strategic plans concerning Southwest Asia. But first, about a report which was published by the newspaper INDIAN EXPRESS. Recently its Washington correspondent met with highly-placed representatives of the administration and this is what they declared to him: "It is with satisfaction that we see American missiles shoot down Afghan airplanes. There is no better way to show the effectiveness of our weapons." And then they added that Washington "intends in the future, too, to continue deliveries of the most varied weapons to the dushman."

But, you see, the discussion should concern Pakistan, it is right to remind the reader. It concerns namely Pakistan because virtually the only channel for the delivery of American weapons to the bands of Afghan counterrevolution is Pakistanian. And if the authorities of Islamabad desired to close it, then the so-called "Afghan resistance," with whose hands the undeclared war against the DRA [Democratic Republic of Afghanistan] is being waged, would come to nought without any doubt.

They also understand this in the American capital. Hence--such an unfailing Washington attitude toward Islamabad's requests, first of all in the military area. During the past six years armaments and military equipment worth 3.2 billion dollars were sent to the Pakistani arsenals. The Pentagon supplied her with F-16 fighter-bombers, Cobra helicopters, tanks and artillery guns, and antiship, antitank, and air missiles. In which regard, this military assistance was rendered by the United States in violation of its own law which prohibits the accomplishment of military deliveries to those countries which are engaged in the development of a military nuclear program. "The United States consciously closed its eyes to this," declared the minister of external affairs of India, N. D. Tiwari, "and delivered to Pakistan weapons in amounts which greatly exceed its defense needs."

But this is not enough already for Islamabad. The implementation of the next complex deal has been begun in accordance with which the Pakistan authorities will receive from the United States during the next seven years weapons worth more than four billion dollars. Thus, in June there was an announcement

concerning the delivery to Pakistan of a large batch of long-range guns and electronic countermeasures [ECM] equipment, and in July--more than 2,000 TOW antitank missiles and night vision instruments.

In the interval between the announcements of these deliveries Islamabad was visited by the head of the U.S. Central Command (CENTCOM), General G. Crist (by the way, this was already his third visit to Pakistan in the last year and a half), under whose jurisdiction are the 200,000-man rapid deployment interventionist forces. And here is the very time to state that in exchange for the delivery of weapons the United States converted Pakistan, with the agreement of its authorities, into a bridgehead for rapid deployment forces. Islamabad offered its air bases for the refuelling of American airplanes and its naval ports for the calls of American ships, including those with nuclear weapons on board. Heavy armaments intended for the rapid deployment forces in case of their being lifted to Southwest Asia are also being stored on Pakistani territory.

Meanwhile Pakistan itself, armed by the United States and ready to obtain the atomic bomb, fits well within the framework of Washington's strategic concepts. It is a lever for indirect pressure on India in the U.S. administration's striving to impose a pro-American orientation on her.

From everything which has been said, the conclusion is suggested without any strained interpretation that the policy of the Pakistan authorities, who are following in the channel of Washington's neo-globalistic strategy, is assisting in whipping up tension in Southwest Asia and hindering the establishment of a more favorable atmosphere there. This was pointed out with bitterness by a prominent figure of the Pakistan opposition and chairman of the People's National Party, Abdul (Vali) Khan. "The Islamabad regime," he said, "transformed the country into an accomplice of the United States and a conductor of dangerous Washington designs in the region. And this in no way corresponds to Pakistan's national interests."

Yes, the role of accomplice, it goes without saying, is always humiliating and fraught with dangerous consequences....

6367

CSO: 18010217

IZVESTIYA NOTES U.S. PLANS TO ESCORT KUWAITI TANKERS

Moscow IZVESTIYA in Russian 17 Jul 87 p 3

[Article: "The Pentagon's Risky Scenario"]

[Text] Washington (IZVESTIYA special correspondent). Next week, American warships will begin the armed escorting of vessels in the Persian Gulf. This was learned after a closed conference of representatives of the Pentagon with the congressional leadership took place last Tuesday. Ships of the U.S. Navy will escort tankers which belong to Kuwait and which, after reregistration in the United States, received the right to fly the American flag.

According to the Pentagon's explanations, the main goal of escorting the tankers is to ensure their safe passage in the zone of the Strait of Hormuz close to the coast of Iran. The mission of the American ships includes the protection of tankers from possible attacks on the part of Iranian ships and airplanes as well as from strikes of missile launchers located on the coast of Iran in this region.

The U.S. Secretary of Defense, C. Weinberger, an active supporter of the planned operations, declared recently that American ships and carrier aircraft may be the first to execute a strike against Iranian military objectives. For this it will be sufficient if they come to the conclusion that Iran is undertaking threatening actions against them. In particular, a reason for a strike may be provided by the operation of radar units which service missile complexes.

The extremely dangerous nature of such a scenario is also obvious to many in the American capital. Prominent representatives of Congress expressed serious misgivings.

According to data in the press, participants in the conference mentioned above, the leader of the Democratic majority in the Senate R. Byrd, and Senators C. Pell, J. Sasser, and D. Boren, condemned the plans for escorting vessels. The House of Representatives of the American Congress expressed itself in favor of their deferment. A similar resolution was brought up in the Senate. These resolutions, although they do not have mandatory force, reflect the striving of the congressmen to dissociate themselves from the Pentagon's dangerous venture and at the same time avoid accusations of an attempt to tie the hands of the executive authority. In characterizing the government's actions, Senator J. Sasser declared: "The administration is making the same error as the sending of the Marines to Beirut. There, as is known, 241 American servicemen died."

According to information in the American press, after as an extreme measure two congressmen disclosed to journalists the date for the start of escorting of the tankers--22 July--the Pentagon decided to change the time for the start of the operation. However, it did not abandon its intention to accomplish the escorting of vessels. Right after the first passage of tankers escorted by American ships, which will take place this month, two more similar actions are planned for the beginning of August.

At the Last Hour

Washington, 16 July. (TASS). By a majority of 54 votes to 44 the upper house of the Congress called upon the administration to postpone plans to escort Kuwait vessels by ships of the U.S. Navy. "Our position is maximally clear: voting was conducted three times, and three times we expressed ourselves against the policy of the White House which can drag the United States into a large-scale military conflict," declared the leader of the Democratic majority in the Senate, Robert Byrd.

6367

CS0: 18010217

END